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PRIMÊRE PERI-AMPULLÊRE CARCINOOM VAN DIE DUODENUM

VERSLAG VAN 'N GEVAL

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en

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Carcinoom van die duodenum is seldsaam. Volgens Eger (1933) het dit in 0.033% van 350,286 lykskouings voorgekom in vergelyking met maagcarcinoom in 3%. Dixon (1946) kon 433 aanneembare gevalle in die literatuur naspoor.

Meeste gevalle kom tussen 50 en 70 jaar voor en veral in mans. Carcinomata word gewoonlik in die middel gedeelte van duodenum aangetref en word verdeel in supra-, peri-, en infra-ampullêre carcinomata.

Simptome word deur afsluiting en verswering van duodenum veroorsaak. Afsluiting kan te wyte wees aan stenose of blomkoolwoekering en veroorsaak kramppyne, uitsitting van die maag, braking en geelsug. Verswering veroorsaak klagtes van ulcus duodeni met vroeë verspreiding van pyn na lumbale gebied. Bloedings mag akuut wees of kronies. Sulke pasiënte mag voordoen met simptome van microcytêre anaemie.

Met peri-ampullêre gewasse is geelsug algemeen. Uit 222 gevalle wat Lieber en sy medewerkers (1939) versamel het, was daar slegs 4 gevalle sonder geelsug. Supra- en infra-ampullêre gewasse kan ook soms geelsug veroorsaak deur uitsaaiing na kliere in porta hepatis.

Hierdie geval word beskryf omdat dit 'n geval van primêre peri-ampullêre carcinoma duodeni is wat sonder geelsug verloop het.

Kliniese Geskiedenis. 'n 59-jarige Blanke man is weens klagtes van prostatisme opgeneem.

Vir drie maande voor opname het hy polydipsie, polyurie, frekwensie en moeilike miksie opgemerk. Tenspyte van goeie eetlus het hy 30 pond gewig verloor en was moeg en lusteloos. Gedurende die laaste maand het sy bobuik begin opsit met 'n ongemaklike swaar gevoel, wat later verander het in gedurige knaende pyn in regter bobuik met verspreiding na lumbale ruggebied.

Kort na opname het hy 'n kortstondige aanval van kwaai retrosternale pyn deurleef.

Daar was geen geskiedenis van geelsug of derglike aanvalle van pyn in die verlede nie.

Kliniese Ondersoek. Pasiënt was skraal, bleek, effens donker van kleur en verstandelik helder. Geen geelsug nie. Edeem van ooglede en enkels kon aangetoon word, en stuwing van nekvenae wat opvallend polseer het. Die hart was matig vergroot en skoenvormig. By regter longbasis was tekens van vog en konsolidasie, met baie growwe krepitasies. Lewer was vergroot aan die regter kant tot onder die umbilicus, en was glad, sag en teer. Abdomen het vrye vog bevat. Prostaat was matig vergroot maar nie van maligniteit verdag nie. Bloeddruk was 150/80 en bloedbesinking 4 mm. in een uur (Westergren).

Spesiale Ondersoeke: Uriene: Suiker, ++++; Asetoon, ++; Etterselle, ++++; *B. coli*, +.

Bloedsuiker-vastend: 340 mg. per 100 c.c.

Bloedureum: 35 mg. per 100 c.c.

Bloedtelling: Haemoglobien, 102%; Rooiselle, 5,150,000 per ku.mm.; Witselle, 13,300 per ku.mm. Neutrofiele, 58%; Limfosiete, 35%, Monosiete, 7%.

Wassermann (bloed): Negatief.

Bloedproteïne: Albumien, 3.73%; Globulien, 1.19%.

Elektrokardiogram: Abnormale klein QRS komplekse in alle standaard afleidings en omgekeerde T golwe in II en III.

Roentgenfotos van borskas het kliniese bevindings gestaaf.

Verdere Verloop. 75 Eenhede van insulien per dag het die diabetes mellitus onder beheer gebring. Behandeling het urinêre ontsteking bevredigend genees en met volle digitalisasie het stuwing spoedig verdwyn om nie weer terug te keer nie.

Nieteenstaande, het pasiënt geleidelik agteruitgegaan. Eetlus het verdwyn en pyn in lewergebied het vererger.

Op die 33e dag na opname het haematemese en melaena opgetree wat herhaaldelike bloedoortappings vereis het. 'n Week later was 'n bariummaal in die liggende posisie gedoen, maar geen afwykings van maag, duodenum of dunderm kon bespeur word nie. Vier dae later is pasiënt aan 'n heftige derm-bloeding oorlede.

Kliniese Diagnose. Diabetes mellitus, coronêre thrombose, vermoedelike carcinoom van stert en liggaam van pancreas, uitsaiings in lewer en verspreiding na dunderm met verswering en bloeding.

Patologiese Bevindings. (Samevatting van lykskouingsverslag.) Lykskouing een uur na dood uitgevoer.

Die lyk was dié van 'n vermaerde Blanke man. Uitwendige ondersoek het uitgesproke anaemie en geringe edeem van voete getoon. Geen geelsug nie.

Inwendige ondersoek het die volgende afwykings opgelewer: 'n hartspierinfarkt van die linker ventrikel op grondslag van totale atherosclerotiese afsluiting van afstygende linker coronêre slagaartak, uitgesproke atheroom van die aorta en sy groot takke, infarkte van longe op basis van thrombi in sclerotiese pulmonêre slagaartakke, kroniese bronchitis, atrophiese emphyseem van longe, middelkwabhypertrophie van dis prostaat met hypertrophie van blaas, en cyctitis.

In die peri-ampullêre gebied van duodenum was daar 'n ovaalvormige dwars ulcus met opgehewe rande 5.5 cm. lank en 2.5 cm. breed. Die ulcusvloer was ongelyk, en met kop van pancreas vergroei. Pyltjie (foto 1) dui uitmondings van ductus choledochus en ductus Wirsungianus aan. Papilla Vateri het weggesweer, maar geen afsluiting van buisgange kon bespeur word nie. Ductus van Santorini was òf vernietig òf het nie bestaan nie.

Uitsaaiings was in subpyloriese en pancreatiese kliere aanwesig, ook uitsaaiings van afwisselende grootte dwarsdeur die lewer.

Massiewe duodenale bloeding was blykbaar die onmiddellike oorsaak van dood.

Soos gesien word (foto 2) het die ulcus uit kliercarcinoom bestaan. Selcytoplasma was eosinophielies en kerne het pleomorphisme en mitotiese figure getoon. Die duodenale wand was heeltemal deurgewoeker maar pancreas self was nie aangetas nie. Bindweefsel aanhegging tussen ulcus en pancreas het plaasgevind. Verder was daar uitsaaiing in epiduodenale kliere, ook emboli in klein venae tussen ulcus en pancreas. Kliere en eilandjies van pancreas is goed bewaar, maar daar was fibrose en infiltrasie met plasmaselle, lymphosiete en neutrophiele net onderkant die ulcus

Die histologiese beeld van uitsaaiings het met die duodenale carcinoom ooreen gekom. Geen fibrose van die lewer nie.

BESPREKING

Die oorsprong van peri-ampullêre carcinoma duodeni is ingewikkeld want rekening moet met die volgende gehou word.

1. Ductus choledochus, ductus Wirsungianus en ductus van Santorini.
2. Duodenale slymvlies en sy Brunner kliere.
3. Maligne ontaarding van heterotopiese maag en pancreasepiteel.
4. Uitbreiding vanaf carcinomata elders in die liggaam.

Uitbreiding vanaf pancreas is hier uitgeskakel want in die orgaan is geen carcinoom nie. Primêre woekerings elders is uitgesluit tydens lykskouing. Geen heterotopiese weefself is in die carcinoom aangetref nie.

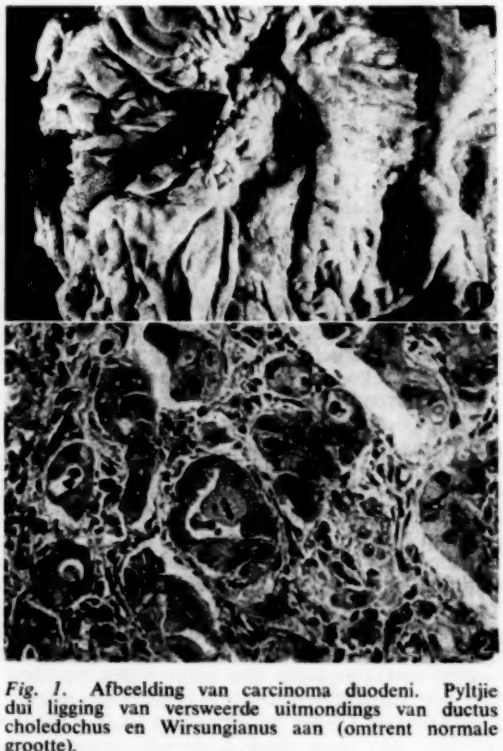

Fig. 1. Afbeelding van carcinoma duodeni. Pyltjie dui ligging van versweerde uitmondings van ductus choledochus en Wirsungianus aan (omtrent normale grootte).
Fig. 2. Die adenocarcinoom.

Carcinoom van ampulla Vateri en ductus choledochus word uitgeskakel op grond van die totale afwesigheid van geelsug in geskiedenis van pasiënt, normale galgange, en perifere ligging van ductus-uitmonding in ulcus. Hierdie beredenering is ook van toepassing op ductus Wirsungianus.

Carcinoom van ductus van Santorini is moeiliker om uit te sluit. Uitskakeling hiervan berus op die feit dat diè ductus mag ontbreek, op afwesigheid van terugdammingsverskynsels in pancreas en op die grootte van

die carcinoomselle. Volgens Deelman (1947) is selle van carcinomata in die buisstelsel van pancreas klein.

Die geval moet dus beskou word as primêre slymvliescarcinoom. 'n Brunnerklieroorsprong in die slymvlies kan egter nie buite rekening gelaat word nie. Robertson (1941) het daarop gewys dat daar geen bekende toets bestaan toepassing waarvan 'n Brunneroorsprong sal vasstel nie. Ons haal aan uit Lieber en sy medewerkers (1939): ‚review of the literature on the few cases in which changes have occurred in Brunner's glands reveals that paradoxically the only carcinomas arising unquestionably from the cells of Brunner's glands are questionable carcinomas.' Histologiese ondersoek van ulcus skep gladnie die indruk van Brunner-oorsprong nie. Tenslotte, geen spoor van voorafbestaande ulcus duodeni is aangetref nie.

OPSOMMING

1. 'n Geval van primêre carcinoom in peri-ampullêre gebied van duodenum wat sonder geelsug verloop het, word beskryf. Daar was bykomstige diabetes mellitus en hartspierinfarksie.

2. Die kliniese en patologiese einskappe van peri-ampullêre carcinoma duodeni word bespreek.

SUMMARY

1. A case of primary peri-ampullary carcinoma of the duodenum, without jaundice, is described.

2. The clinical and pathological features of peri-ampullary duodenal carcinoma are discussed.

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THE WORKER AND HIS ENVIRONMENT

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The considerable industrial development which has taken place in recent years in South Africa has drawn a very large percentage of the population into industry. Many health problems, some old and some new, have arisen as a result. The subject of industrial medicine is, therefore, becoming of increasing interest and importance. Not all medical practitioners, however, have enjoyed the advantage of a training in the subject. This article has, consequently, been prepared to focus attention on fundamentals which influence health and safety in the factory. Modern industry uses many hazardous processes and substances. To safeguard and promote the well-being of the worker it is necessary to eliminate or control these hazards, and to provide, as far as possible, a safe and healthy environment. In order to achieve this aim the following basic requirements should receive attention.

Ventilation. It is of the utmost importance that there should be adequate cross or through ventilation in workrooms. Not only does this facilitate removal of noxious gases, dusts and similar substances, but it is essential to maintain health and to provide pleasant working conditions. A comfortable temperature range and degree of humidity play an important role in influencing a state of well-being and a satisfactory output. Where offensive or dangerous substances arise or are likely to arise in industrial processes, mechanical ventilation should be employed in order to remove such substances. The guidance of the local factory inspector is available on such matters and he should be consulted.

Light. Well-lighted working premises can do much to prevent accidents. Good lighting is also a material aid in encouraging efficiency and promoting a cheerful environment. Glare and any other factor detracting from eye comfort must be avoided. Natural light is best, but were circumstances do not permit adequate illumination by this means, artificial lighting must be used to supplement the natural.

A check-up by means of a lightometer on the intensity of illumination will ensure that a satisfactory standard does, in fact, exist in workrooms.

Good Housekeeping. Tidiness, orderliness and cleanliness in work rooms are of major importance. These prevent accidents, encourage efficiency, and help to produce harmonious working conditions with all the obvious advantages flowing therefrom.

Washing and Sanitary Facilities. Many health hazards in industry can be successfully combated by the provision of generous facilities for the removal from the skin of various substances relating to the work. Cases of dermatitis often occur as a result of prolonged contact with the worker's skin of various irritants. In this connection the use of strong skin irritants, such as petrol, paraffin, and abrasive or strong soaps, as skin cleansers, does much harm and causes many cases of dermatitis. It should also be remembered that there are many substances which are harmful to health when absorbed through the skin as a result of prolonged contact. Adequate showers and wash basins should be provided. Hot water, *clean* towels and *mild* soap are necessities. Neutral sulphonated castor oil may be

used as a cleanser, and electric drying machines have many advantages. Free laundering of washable overalls is also conducive to cleanliness. Toilet facilities, separate for the sexes, adequate in numbers, and maintained in an hygienic state, are essential to health.

Personal Facilities. Change, dining and rest rooms add materially to the well-being of the workmen. An organized service for the provision of balanced and inexpensive meals or snacks is a valuable contribution to health and a proven means for the prevention of accidents. Even the smaller factory can make some provision on these lines, e.g. a mid-morning snack of milk and bananas to make good an unsuitable breakfast.

Substitution of Less Toxic Substances for more Dangerous Ones, and Guarding of Machines. Where substances which are dangerous to health are used in a factory, these should be listed by the management. Where possible, less dangerous substances should be substituted. The use of machine guards and a Colour Code (obtainable from the South African Bureau of Standards, Private Bag 191, Pretoria) are effective measures in combating accidents.

Enclosure and Isolation of Harmful Processes. Many processes involving the use of harmful substances can be enclosed in such a manner as to prevent escape of dangerous products into the atmosphere. Other processes can be isolated in a separate cubicle, room or building with provision of suitable personal protective equipment for the workers necessarily engaged therein.

Personal Protective Devices. These include breathing equipment, gloves, barrier creams, goggles, etc. Such protective devices as are appropriate to the hazard should be employed. It must, however, be emphasized that these should not be regarded as a substitute for primary preventive measures which should always receive first consideration. There are, however, circumstances where primary preventive measures cannot be employed, for one reason or another, and it is here that the second line of defence is indicated.

Safety and Health Supervision. Medical supervision should include a pre-placement medical examination and such periodic medical examinations as may be warranted. In dangerous trades a periodic check-up on workers exposed to hazard, in a material degree, can do much to obviate ill-effects by timely diagnosis and treatment. The need for efficient first-aid equipment and facilities requires no emphasis. Where circumstances permit of the employment of an industrial nurse, her services will prove of considerable value, not only in the sphere of health, but also that of accident prevention.

Last, but by no means least in importance, should be stressed the necessity for an organized and *continuing* accident prevention programme. Undoubtedly the best means of achieving this is by the formation of an accident prevention committee, in the factory, on which both management and workers are represented. In order that this committee should continue to function, it is essential that somebody, with sufficient interest, should keep it going. Its value to both management and the worker can be in no doubt.

NEW PREPARATIONS AND APPLIANCES

Alginate Dressings (Calgitex)

The last few years have seen a great advance in the control of forms of bleeding which are not amenable to being checked by methods using clamps, ligaturing or the diathermy current. Capillary oozing and venous bleeding from parenchymatous organs and highly vascular tissues have often defied all ingenuity, so that surgical thought has naturally veered towards finding absorbable materials capable of being applied to such sites, and of being left *in situ* for incorporation into scar tissue formed in the course of healing. Research workers have thus developed foams made from fibrinogen and thrombin, gelatin and gauze-like fabrics made from oxidization products of cellulose, all of which were found resorbable in animal and human tissue.

A New Material. A new base material which is of use in the treatment of haemorrhage and of burns and wounds alike, is alginate. Many different forms of alginate have been produced, including gauzes, wool, solutions and films. Both calcium and sodium alginates have been found non-antigenic, and sterilizable by various methods, while the introduction, during manufacture, of a variable percentage of sodium ions into calcium alginate products ('conversion') makes possible a range of materials of various solution and absorption rates. Alginates do not interfere with the action of combined antiseptics or antibiotics.

Absorbability. Calcium alginate materials have been found slowly absorbable in animal and human tissues, according to the vascularity and pH of the site and, of course, according to the amount implanted. They have a marked haemostatic effect. 'Converted' alginate materials are also markedly haemostatic and differ from calcium alginates only in their more rapid resorption into or solubility in tissue. From these observations it is clear that dressings prepared from alginate have important advantages over many other currently used preparations. The material has another important property, for viscous solutions of sodium alginate, spread over a wound or burn, can be instantly converted into a plastic film, by spraying a solution of calcium salt (calcium chloride or eusol solution) over it. Such films are impermeable to water, but allow all water vapour formed underneath to permeate through to the outside.

Uses. Alginate dressings, mainly in the form of wool or gauze, have been found of great use in aural surgery[1], extrapleural pneumothorax[2], dental haemorrhage[3], epistaxis, dural bleeding, haemorrhage from the prostatic bed after removal of this gland, and in many other massively oozing sites. It is important to note that only the minimal amount of material required must be used if it is intended to 'bury' it in tissue; implantation of a massive bulk defeats its object, since much of the material is completely out of contact with vascular tissue and is not absorbed, thus acting as a foreign body. In some sites (e.g. nose, ear, sinuses, genital passages) this may be no disadvantage, since the material can be readlly washed out from them with a lukewarm solution of buffered sodium citrate, bicarbonate, etc.

External alginate dressings have already been found of benefit in the treatment of burns and wounds[4] and, in particular, in the treatment of such conditions in difficult crevices, such as the external meatus of the ear. The great advantage of alginate dressings is that, provided the wound remains uninfected during healing, the dressing need not be changed. When it has to be changed or finally removed, it can be washed off, thus preventing wound disruption. Alginate dressings can be properly described as occlusive dressings, and it is therefore important to bear in mind that covering an infected area provokes trouble. Alginate dressings for this reason should not be recommended for the treatment of torpid ulcers (such as varicose ulcers) unless the ulcers are proved bacteriologically clean.

Alginate dressings under the name of 'Calgitex' are now available in South Africa. Gauze and wool are packed in sealed glass tubes already sterilized and ready for immediate use. They are supplied in two absorption rates, fast and slow, and in addition a special gauze is available for E.N.T. use, which is virtually non-absorbable. Solutions are in 4-oz. bottles. Other specialized forms of alginate dressings are now in preparation and are expected to be available shortly.

The South African Agents for Calgitex are: Messrs. Chas. F. Thackray (S.A.), (Pty.), Ltd., 301, Boston House, Strand St., Cape Town. Also at 23, Orion House, 235, Bree St., Johannesburg.

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CHLOROMYCETIN

Chloromycetin (chloramphenicol, Parke-Davis) is a crystalline antibiotic having specific therapeutic activity against a wide variety of pathogenic organisms. It was initially obtained from a new species of soil organism isolated in Venezuela, now designated *Streptomyces venezuelae*. Chloromycetin has been identified chemically and is the first antibiotic to be produced synthetically on a practical basis.

Chloromycetin represents an epochal achievement in chemistry and medicine. It is neither identical nor similar to any other antibiotic chemically, and in therapy is of unusual importance, due to its rapidity of action and range of usefulness.

Briefly summarized the general attributes of chloromycetin are:—

1. *Crystalline Nature.* There is no variability in chloromycetin, due to its pure crystalline chemical nature.

2. *Synthetic Availability.* Chloromycetin is the first and only antibiotic to be produced on a practical scale by chemical synthesis.

3. *Well Tolerated.* Side reactions such as nausea, headache, skin eruption, and enteritic symptoms are rare following the use of effective doses of chloromycetin.

4. *Orally Effective.* Chloromycetin is well utilized orally as demonstrated by the appearance immediately of high concentrations in body fluids.

5. *Rectally Effective.* In a preliminary study in infants and children chloromycetin appears to be effective when given rectally.

6. *Rapid Action.* Due to the rapid metabolism of chloromycetin, its active principles are released to favour immediate availability.

7. *Wide Therapeutic Index.* The scope of action of chloromycetin is extremely broad—rickettsiae, viruses, bacilli, staphylococci, streptococci, gonococci, pneumococci, brucellae and certain salmonella including typhosus. Strains resistant to other antibiotics are being found susceptible to chloromycetin.

8. *Prophylactic Use.* An important prophylactic use lies in the bacteriostatic effect on intestinal flora, so that certain pathogens may be eliminated prior to surgical procedures.

9. *Compatibility.* Chloromycetin is compatible with other antibiotics and sulpha drugs.

10. *Venereal Disease.* Chloromycetin proved effective in acute gonococcus infection in a preliminary study. Penicillin is the drug of choice, however, until a more extensive study has been made. Chloromycetin should be used in penicillin-resistant cases. Both have been found to have spirochaetocidal effects and hence may mask syphilis.

Dosage and Administration. Wide clinical experience with chloromycetin in acute and chronic conditions in adults indicates that the majority respond rapidly to a dosage of 50 mg. per Kg. body weight per day (one 250 mg. capsule per 11 lb.) given in divided doses for several days, or until symptoms have been controlled, after which reduction to 25 mg. per Kg. body weight as a daily dose in divided portions will suffice. A total dose of chloromycetin ranging from 10 to 15 gm. or more may be required. The interval between doses should never be longer than eight hours in order to prevent a drop in the concentration of the drug in the blood below a minimum effective level.

The dosage for infants and children is calculated on the basis of 100 mg. per Kg. body weight per day and should be divided into four to six hour intervals. Here administration constitutes a practical problem. Irradex, honey, syrups, gelatin and various food vehicles have been used to mask the objectionable taste. The capsule can, however, be punctured and inserted rectally without undue irritation to the rectal mucosa and with comparable therapeutic results.

Recent reports show that chloromycetin has been used successfully in whooping cough, certain bacillary urinary infections including *B. proteus* and virus pneumonia.

Availability. Chloromycetin is now available in South Africa in bottles of 12×0.25 gm. capsules.

ABSTRACTS

Treatment of Early Syphilis in Five Weeks (Traitement de la Syphilis Récente en 5 Semaines). Marin, A., Boulais, F. L., Lambert, A., Foisy, J. P. and Leclerc, G. (Montreal). Annales de Dematologie et de Syphiligraphie, **1**, 23-34, 1949.

The treatment consists of the simultaneous administration of penicillin, mapharsen and bismuth. Penicillin is given (in hospital) as 60,000 units in aqueous solution every three hours for 7½ days, total 2,400,000 units. Mapharsen 0.06 gm. is given four times a week for five weeks and bismuth is given twice weekly (Bivatol 1 c.c.—0.07 gm. bismuth metal) for the same period.

Of 230 patients treated, 96% completed the course. There was one death from arsenical encephalopathy, reactions otherwise being negligible. 'Cure' was achieved (follow-up 6-30 months) in 100% of 36 cases of seronegative primary syphilis, in 90% of 55 cases of seropositive primary syphilis and in 86% of 94 cases of secondary syphilis.

Diatrin Hydrochloride. Clinical and Toxicological Studies of a New Antihistamine Agent. Combes, F. C., Zuckerman, R. and Canizares, O. (1949): J. Invest. Derm., **13**, 139.

The newer antihistamine agents such as benadryl and pyribenzamine produce a high incidence of side effects. With benadryl about 50% of patients are affected, with pyribenzamine about 25%.

Diatrin hydrochloride was shown in animal experiments to be an effective histamine antagonist and to be only one half to one third as toxic as benadryl, pyribenzamine, antergan and neo-antergan, with which it has been compared.

It has now been tested in 72 patients with a variety of dermatoses in doses from 100 to 1,000 mgm. daily for periods ranging from 48 hours to 82 days. No serious or lasting toxicity was encountered and the incidence of side effects was lower than has been reported with equivalent doses of other histamine antagonists now in general use.

Lewandowsky's Rosacea-like Eruption. Snapp, R. H. (1949): J. Invest. Derm., **13**, 175.

An analysis of 20 cases, 16 of which were followed for from one to 11 years. Mantoux tests in 11 cases at the time of eruption showed a low degree of tuberculin sensitivity. In follow-up studies all but one of 16 showed a low degree of sensitivity. Average duration of the disease was 2.8 years with and 2.5 years without treatment. Relapse occurred in 25% of cases, the average duration of second attack being 1.5 years. Small fractional doses of X-rays seemed to be the most effective type of treatment. Healing left no scars.

The author believes that this disease cannot be classed as a tuberculid because it fails to meet the requirements of: (*a*) a definite focus of tuberculous infection, or a history of such; (*b*) hypersensitivity to tuberculin. The clinical and biopsy findings and reaction to treatment distinguish it from rosacea proper and it appears to be a distinct entity.

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VAN DIE REDAKSIE

VERPLIGTE INTERNSKAP: MOET DIT TERUGWERKEND WEES?

Die mediese studente, die Mediese Vereniging van Suid-Afrika en die Geneeskundige Raad is dit in beginsel almal hartlik eens dat die instelling van 'n verpligte tydperk van internskap by 'n *geskikte* hospitaal 'n uiters wenslike stap in geneeskundige opleiding is. Daar is egter nie dieselfde eenstemmigheid oor die wyse waarop hierdie verpligte internskap ingevoer moet word nie. In 'n vorige hoofartikel[1] het ons sommige van die belangrike probleme bespreek wat geskep word deur gedwonge internskap verpligtend te maak vir studente wat reeds hulle studies in die medisyne onder die indruk begin het dat hulle met 'n sesjarige en nie 'n sewejarige tydperk van opleiding nie 'n aanvang maak.

Ons het ook die aandag op die besluit van die Federale Raad gevestig dat: ‚Dit sou onbillik wees om die registrasie van 'n gegradueerde uit te stel tot na voltooiing van na-graadse hospitaaldiens van een jaar tensy en totdat toereikende voorsiening gemaak word vir sodanige interne diens in hospitale waar die toestande van erkende opvoedkundige waarde is'.[2] Die Minister het sedertdien erken dat sommige gegradueerdes in hospitale vir sielsiekes geplaas is en dat ander miskien in gesondheidsentrums sal moet gaan. Ons weet ook seker van minstens drie gegradueerdes wat 'n paar weke gelede na die buiteland gegaan het omdat hulle ten tyde van hulle vertrek nog nie in geskikte betrekkings aangestel is nie. Die toedrag van sake mag dus nie so bevredigend wees as wat gemeen is nie.

Of die regulasies wat reeds afgekondig is nie in werklikheid *ultra vires* ten opsigte van die Hoofwet is nie, het ook al baie bespreking uitgelok. Hierdie sy van die saak is inderdaad uitvoerig deur kol. R. D. Pilkington Jordan behandel toe die Wysigingswetsontwerp op Geneeshere, Tandartse en Aptekers onlangs deur die Raad oorweeg is en hy die tweede lesing daarvan geopponeer het.[3]

Kol. Pilkington Jordan het die aandag gevestig op 'n belangrike verklaring deur mnr. Raikes, prinsipaal van die Universiteit van die Witwatersrand wat na sy terugkeer van 'n besoek aan die buiteland waar hy die saak met die registrateur van die Algemene Mediese Raad van die Verenigde Koninkryk bespreek het, as volg verslag gedoen het:

‚Die registrateur (dit will sê van die Algemene Mediese Raad van die Verenigde Koninkryk) was uiters besorg oor die wesenlike afbreking van die wederkerigheid deur ons instelling in die Unie van die internskapjaar. Hy het erken dat die verandering reeds lankal in Engeland moes gemaak gewees het, maar dat dit nie gedoen is nie weens die oorlog en druk van wetgewing sedertdien. Hy het my verseker dat voorsiening daarvoor gemaak word in 'n nuwe mediese wetsontwerp wat in 1947 aan die Ministerie gestuur is. Dis Minister het my verseker dat die wetsontwerp tydens die sitting van 1950 voor die Parlement ingedien sal word maar inwoningskap sal natuurlik nie ten volle van krag wees nie tot ongeveer 1957. . .'[4]

1. Hierdie *Tydskrif*, 11 September 1948, bl. 541.
2. Hierdie *Tydskrif*, 11 September 1948, bl. 542.
3. Hansard, *Debatte van die Volksraad*, No. 3, 754-765.
4. Hansard, *Debatte van die Volksraad*, 6 Februarie 1950, 760.

EDITORIAL

COMPULSORY INTERNSHIP: SHOULD IT BE RETROSPECTIVE?

The medical students, the Medical Association of South Africa and the Medical Council are all in hearty agreement that, in principle, the introduction of a compulstory period of internship at a *suitable* hospital is a most desirable step in medical training. Opinion, however, is not as unanimous about the manner in which this compulsory internship is being introduced. In a previous editorial[1] we discussed some of the important problems created by making compulsory internship obligatory on students who had already begun their medical studies under the impression that they were embarking on a six and not a seven year period of training.

We also drew attention to Federal Council's resolution that: 'It would be unfair to postpone registration of a graduate until after one year's post-graduate internship unless and until adequate provision is made for such internship in hospitals where conditions are of accepted educational value.'[2] It has since been admitted by the Minister that some graduates have been placed in Mental Hospitals and that others may have to go to Health Centres. To our certain knowledge also at least three graduates voyaged overseas a few weeks ago because, at the time of their departure, they had not been placed in suitable appointments. The position, therefore, may not be as satisfactory as was thought to be the case.

There has also been considerable discussion whether the regulations already promulgated are not actually *ultra vires* the parent Act. In fact, this aspect of the matter was dealt with very fully by Col. R. D. Pilkington Jordan when he opposed the second reading of the Medical, Dental and Pharmacy Amendment Bill when it was before the House recently[3].

Colonel Pilkington Jordan drew attention to an important statement made by Mr. Raikes, principal of the University of the Witwatersrand, who made the following report on his return from a recent visit overseas, where he discussed the matter with the Registrar of the General Medical Council of the United Kingdom:

'The Registrar (i.e. of the General Medical Council) was very distressed at the virtual breaking of reciprocity by our introduction in the Union of the intern year. He admitted that the change was long overdue in England, but that it had not gone through on account of the war and the pressure of legislation since. He assured me that provision was made for it in a new Medical Bill sent to the Ministry in 1947. The Ministry assured me that the Bill would go before Parliament in the 1950 session, but, of course, internship would not be fully effective till, say, 1957 . . .'[4].

1. This *Journal*, 11 September 1948, p. 541.
2. This *Journal*, 11 September 1948, p. 542.
3. Hansard, *House of Assembly Debates*, 6 February 1950, 731-752.
4. Hansard, *House of Assembly Debates*, 6 February 1950, 743.

Dit sal jammer wees indien die beginsel van 'n jaar van internskap waaroor alle betrokke partye dit so roerend eens is, bloot as gevolg van die wyse van instelling deur talle rampspoedige en onwenslike komplikasies benadeel moet word.

Daar is veel te sê vir 'n beleid van stadig oor die klippe. Wat die wetlike regte van die saak ook al mag wees en watter bevoegdhede ons ook al mag hê om sulke belangrike veranderinge eensydig in te voer, is daar die sterkste morele rede om almal wat voor 1948 as *bona fide* mediese studente geregistreer is, te onthef van die vereistes van die regulasies wat in daardie jaar ingestel is.

Die kwessies wat geopper is, het 'n taamlike lang debat gedurende die Komiteestadium van die Wetsontwerp uitgelok toe 21 toesprake gemaak is gedurende die bespreking om die Minister te oorreed om kolonel Pilkington Jordan se amendement te aanvaar dat die regulasies nie van terugwerkende krag vanaf 'n datum vroeër as 20 Augustus 1948 moet wees nie. Dit was die datum waarop die Minister vir die eerste keer aan die wêreld verkondig het dat die nuwe vereiste in verband met verpligte internskap toegepas gaan word.

Kolonel Pilkington Jordan moet geluk gewens word met die uiters billike en deeglike wyse waarop hy die saak vanuit alle gesigspunte gestel het. Sy bydrae tot die debat oor die tweede lesing was 'n welsprekende, fyn afgewerkte, gevatte en raak toespraak waarin hy 'n kragtige poging aangewend het om onreg te voorkom.

Die gegradueerdes in geneeskunde is gelukkig om so 'n kampvegter vir hulle regte te hê en ons hoop dat daar tog nog geleentheid vir die Minister sal wees om die kragtige en ernstige vertoë wat tot hom gerig is te oorweeg.

It would be a pity if the principle of a year of internship, about which everybody concerned appears to be in such vehement agreement, should be prejudiced by many unfortunate and undesirable complications, merely by the method of its introduction.

There is much to be said for a policy of hastening slowly. Whatever the legal rights of the matter may be and whatever powers we may have to introduce such important changes unilaterally, there is the strongest possible moral reason to absolve from the requirements of regulations introduced in 1948 all those who had registered as *bona fide* medical students before that time.

The issues raised provoked very considerable debate during the Committee Stage of the Bill when 21 speeches were made in the discussion to persuade the Minister to accept Colonel Pilkington Jordan's amendment that the regulations should not be retrospective beyond 20 August 1948. This was the date when the Minister first gave notice to the world that the new requirement about compulsory internship was being implemented.

Colonel Pilkington Jordan is to be congratulated on the extremely fair and thorough manner in which he presented the case from all points of view. His contribution to the debate on the second reading was an eloquent, polished, pointed and telling speech which sought strongly to prevent injustice.

The medical graduates are fortunate in having found such a champion of their rights and we hope that there will still be an opportunity for the Minister to consider the very strong and earnest representations which have been made to him.

REPAIR OF CONGENITAL ATRESIA OF THE OESOPHAGUS*

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The condition of Congenital Atresia of the Oesophagus with or without oesophago-tracheal fistula is not rear as it has hitherto been popularly supposed to be.

Franklin says that the incidence used to be given as one in 50,000 births, but he was able to collect four cases in 10,543 births at the British Postgraduate Medical School, and in 6,916 successive post-mortem examinations at the Hospital for Sick Children in Glasgow there were 24 cases, with another six almost certain cases during the same period that did not come to autopsy.

No doubt many cases are not diagnosed and the infants are said to have died from pneumonia (for if nothing radical is done for the condition it is incompatible with life). This is of course true, but there must be many cases of infant death from pneumonia, where the cause of pneumonia is congenital atresia of the oesophagus.

It is very remarkable how, in the papers by nearly every writer on this subject, the incidence rapidly increases as time goes on; that is as the interest of the surgeon and his paediatric colleague are aroused and they are on the lookout for such cases.

Franklin's figures make the incidence one in 2,600 births, that is only half as common as cleft palate and hare lip which according to Vaughan occurs one in 1,200. When one realises that no one can miss a case of cleft lip or palate, and the congenital oesophageal atresia has been in the past, and is now, often missed, the probability exists that this serious abnormality is almost as common as cleft lip and palate.

The condition occurs in various forms which have been classified by Vogt.

Type 1. Absence or agenesis of the oesophagus.
Type 2. Atresia without tracheal fistula.
Type 3. Atresia with tracheal fistula:
(*a*) With upper end of the oesophagus.
(*b*) With lower end.
(*c*) With both ends.

80% of the cases are of the Type 3 (*b*)—that is atresia of the central part of the oesophagus with a blind upper pouch, but with the lower end communicating by a fistulous opening with the trachea. All the seven cases

* This paper was read at the Medical Congress of the Association held at Cape Town in September 1949.

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for which I have given an anaesthetic have been of this type.

In order to understand the anaesthetic problem, the possible lines of surgical attack must be fully appreciated.

In any case with a communication between the trachea and oesophagus, the fistula must be closed as a life-saving method, or else the child will inevitably succumb to pneumonia due to aspiration of saliva or gastric fluid.

There are no doubt a number of cases in which the distance between the two patent portions of the oesophagus is too great to allow of end to end anastomosis, and in these cases the only means of surgical repair so far employed has been to bring out both ends to the surface and make a skin tube to join the two portions. This is done in three stages and is known as ante-thoracic oesophagoplasty. Recent advances in adult oesophageal surgery prompt the question of whether it may not be possible to discard the lower end of the oesophagus, and bring up the stomach to be joined to the upper end.

It certainly seems hard to condemn an infant to such an abnormal life as an ante-thoracic oesophagoplasty implies, and in the great majority of cases it will be found possible to do an end to end anastomosis of the oesophagus within the thorax. This may be done either inside the pleura, or extrapleurally in the mediastinum by stripping the pleura forwards. There is no doubt that the latter method is preferable because the likelihood of some leak from the anastomosis is very great, and if intrapleural it will cause an empyema—an almost certain cause of death—whereas a mediastinal leak can drain to the surface through the wound and the infection can be controlled, and, if the anastomosis is adequate, the resulting mediastinal fistula will close spontaneously.

The story of the growing number of surgical attempts to cure this otherwise hopeless condition, and the rapidly increasing percentage of success is most stimulating.

The condition was first described in 1670 and a description appears in an anatomy book by Gibson, published in 1703.

The first case report was by Martin in 1821.

The first attempt at surgical repair was done in 1913 by Richter.

The first cure was reported by Leven in 1941 in a child operated on by him in 1939, the operation was a three-stage ante-thoracic oesophagoplasty.

To Haight and Towsley goes the credit for the first intra thoracic anastomosis with survival. Since then several surgeons have reported successful cases, notably Longmire, Swenson, Franklin, Haight, and Gross and Scott. Swenson's series is most encouraging. He reports 20 cases done in 18 months, 15 had primary oesophageal anastomoses done with 14 successes, and the other five had multiple stage operations with two survivals.

Extra pleural intrathoracic end to end anastomosis therefore, besides being the most anatomically correct and aesthetically desirable operation seems to offer the best chance of success.

For the successful treatment of these cases early recognition of the possibility and accurate diagnosis is essential. Fortunately this is, or should be, easy, and with the improved education of medical practitioners and midwives, I am sure that many more cases will in the future be given their only chance of living.

There is a very constant symptom complex. A history of excessive mucus in the mouth, attacks of choking and cyanosis at every attempt to feed is almost diagnostic. Infants presenting this picture should be seen by a doctor who should then attempt to pass a soft rubber catheter (size 8 French) down the oesophagus to the stomach. An obstruction is generally found 10 to 12 cm. from the gum margin. Care must be taken that the tube does not coil up in the dilated upper pouch and the result mistaken for successful gastric intubation. The examination is best done under the X-ray screen where the position of the tube can be verified. A few drops of lipiodol may be instilled through the catheter, and the blind upper end of the oesophagus thus demonstrated, the lipiodol should then be sucked out through the catheter. Air seen in the stomach on screening is very suggestive of the presence of a fistula between the trachea and the lower end of the oesophagus. Barium must on no account be used, as any spill-over into the lungs will cause widespread and most probably fatal broncho-pneumonia.

When the diagnosis is established, as early as possible the infant must then be prepared for operation. The measures to be adopted include:

1. *Constant or frequent aspiration* of mucus from the upper blind pouch to prevent further inhalation and broncho-pneumonia.
2. *Head down tilt* will help mucus to drain from the oesophagus and lungs, and in cases where aspiration has already occurred of mucus or misguidedly given barium, *Bronchoscopy* with suction may help to clear up the condition.
3. Areas of collapsed lung may be rapidly cleared up by *changing the position* of the child frequently.
4. *Chemotherapy* with penicillin or sulpha-drugs will greatly help to clear up any existent pneumonia and act as a prophylactic against future development.
5. *Intravenous fluids* are essential.

These children are nearly all dehydrated, and this is best corrected by infusion through a cannula in the saphenous vein.

Polythene cannulae produce little or no tissue reaction or intravascular thrombosis, and as the drip will certainly be wanted not only for pre-operative correction of dehydration, but also for administration of blood during the operation and for post-operative intravenous feeding, these cannulae should be used if they are available.

Great care must be taken of course not to overload the circulation with fluids in such small infants. If too much fluid is given there is a danger of widespread oedema, the pulmonary oedema and oedema about the oesophageal anastomosis being in the post-operative course most undesirable.

Swenson, whose remarkable series of successes has been referred to, advises that the above pre-operative measures should be used to bring the infant to the

operating table in the best possible condition to stand the surgical ordeal that awaits it, but that one should not delay the operation for longer than 48 hours after the condition is diagnosed as the longer intervention is postponed the more chance there is of further intrapulmonary aspiration.

A review of the literature shows that for the operative procedures many types of anaesthesia have been advocated and practised.

For the comparatively minor procedures of oesophagostomy in the neck, or gastrostomy as parts of the multi-stage anterior oesophagoplasty, there is no doubt that local anaesthesia is adequate and attended with least risk. With this general opinion I am in complete agreement.

For the intrathoracic operations, either the simple ligation of the fistula or the complete repair of end to end oesophageal anastomosis, there exists some difference of opinion.

Franklin's two successful operations were both performed under local anaesthesia, 1% procaine being used for infiltrating the line of the skin incision He says: 'The anaesthetist is best employed keeping the upper pouch empty, and applying oxygen under pressure from time to time'.

Lee McGregor in his recent article in the South African Medical Journal on 'The Conquest of the Oesophagus' records one case that died the next day from mediastinal displacement, and says quite simply: 'Local anaesthesia is used'.

Aird in his recent book makes no reference to the type of anaesthesia but mentions the 'anaesthetist' as someone who can pull a rubber catheter passed into the upper end of the oesophagus out of the mouth: but he is probably not referring to the anaesthetist as the giver of a general anaesthetic since, as he is Professor of Surgery at the British Postgraduate Medical School, the cases that he has in mind are probably the two referred to by Franklin, done under local analgesia at the same hospital.

Out of Swenson's magnificent series of successful cases he did one with local analgesia. This was an infant that had, apart from the atresia and oesophagotracheal fistula, pneumonia, congenital abnormality of the heart, an imperforate anus and perineal fistula. He stresses in his paper, however, that babies done under local anaesthesia are very restless and the operation is thereby made more difficult.

Haight and Towsley (5) reporting the first successful end to end anastomosis, used ¼% metycaine until they came to the actual performance of the anastomosis 'when general anaesthesia was necessary'. They report that every time the child strained or cried, the upper end was pulled up and so they had to resort to open ether. They also say that positive pressure should be handy, and that straining may be dangerous as there is an increased likelihood of tearing the pleura on the ends of the cut ribs.

Ladd reports six cases of primary anastomosis with two successes, but makes no mention of the type of anaesthesia.

Daniel records seven cases of atresia, in three of which he attempted end to end repair which he found only possible in two and one survived. He used ½% procaine as a skin infiltration and gave oxygen throughout. He admits that there 'were short periods of cyanosis but at the end of the operation the child's general appearance was fairly good'.

Haight reading a paper on 16 operations for reconstruction of the oesophagus with six survivals used local ½% procaine or ¼% metycaine until the ribs were cut and then gave open-drop ether with a face-piece handy for oxygen under pressure to inflate the lungs if the pleura was accidentally opened. In the discussion following this paper Daniel said that general anaesthesia should not be used, and advocated the use of local or no anaesthesia at all. Haight replied that the operation was more difficult under local and that it could be done more quickly, with less trauma and with a better anastomosis, under general anaesthesia.

Gross and Scott also have some special words to say about the choice of anaesthetic. In reporting one successful case they say: 'We are convinced that general anaesthesia greatly facilitates the performance of the operation and need not be productive of shock. Cyclopropane has been the anaesthetic of choice, it gives sufficient relaxation, and a high concentration of oxygen. A tight-fitting mask can give positive pressure and the lung can be expanded if the pleura is opened. The selection of cyclopropane has been dependent on the availability of an expert anaesthetist who had a wide experience of its use in babies. Otherwise local would probably be safer'.

Fourteen out of Swenson's series of 15 cases of end to end anastomosis were done with cyclopropane, and 13 of these survived.

The protagonists of general anaesthesia can want no better argument for their cause than those figures.

On theoretical grounds there is to my mind no argument at all.

The operation is a thoracotomy, whether the pleura is opened or not, and comparatively large portions of three or four ribs are removed from the right hemithorax. The rigidity of the right chest is therefore destroyed and the right lung cannot therefore be expanded by the infant's own respiratory efforts. Furthermore the mediastinum is extremely mobile in such cases and the action of the negative pressure in the left pleura acting against atmospheric pressure in the right hemithorax, aided by gravity, must tend to displace the mediastinum to the left and hamper the efficiency of the left lung.

In short if the child is allowed to breathe spontaneously, a condition of paradoxical respiration will develop, and will be increased to an extremely dangerous degree by straining or crying. Not only will this have a deleterious effect on the tiny infant, by impairing the efficiency of both the respiration and the circulation, but also, as many surgeons have noted, makes the operation much more difficult by the violent movements of the diaphragm and mediastinum.

Local analgesia, which can do nothing to stop straining or crying on the part of the infant, should be ruled out as rendering the condition of the patient more precarious, and the operation more technically difficult.

General anaesthesia, by giving quiet respiration

reduces the extent and harmful effects of paradoxical respiration and mediastinal flap.

I will go further and say that one should protect the child and help the surgeon still more by abolishing all attempts at spontaneous respiration, maintain rhythmic filling of both lungs with a mixture rich in oxygen, and keep the mediastinum in the mid-line by controlled respiration.

Continuous positive pressure is, or should be, an almost universally outmoded technique in adult intrathoracic surgery, and I maintain that the same principles should apply to infant surgery.

Continuous positive pressure is harmful because:

1. It is exhausting for the patient to attempt to expire for a long period against pressure, even for adults, and in infant surgery we should save the patient, at all costs, this extra effort.

2. It maintains the lung on the side of the operation distended and so obstructs the surgeon.

3. It tends to blow secretions into the terminal bronchioles and predispose to extensive post-operative collapse.

4. It prevents the expiration of carbon dioxide and there is consequently a tendency to carbon dioxide retention, a very poisonous condition.

5. It raises the venous pressure and therefore increases the tendency to troublesome and dangerous haemorrhage.

6. It prevents the normal bellows action of the thorax in assisting the venous return to the heart, and therefore throws a strain on the circulation.

Having thus reviewed the literature and discussed the theoretical considerations on anaesthesia for intrathoracic operations in infants a few days old, I would like to place on record my own experiences.

I have been associated with eight cases. One of these was diagnosed very late, and had very inadvisedly been given barium for radiological examination, and arrived in the hospital in the last stages of broncho-pneumonia, and died before any surgery could be attempted. Four of the remaining seven were done in May, June, and July 1948 in Utrecht, Holland.

My first experience of this type of case was in May 1948, when I was asked to give an anaesthetic for a five-day-old baby, by Dr. Brom of St. Antonius Roman Catholic Hospital, Utrecht.

The induction was with nitrous oxide—oxygen—ether, and the child was intubated orally with a 00 Magill Flexometallic tube. Completely free expiration was allowed by using Ayre's technique. The anaesthesia was maintained with nitrous oxide—oxygen—ether.

There was a considerable amount of paradoxical respiration which considerably interfered with the operative technique and could only have been harmful to the infant. The lung was periodically inflated by the simple procedure of putting one's thumb over the open end of the expiratory tube. It was felt that on any future similar occasion it would be preferable to have the advantage of controlled respiration even at the possible extra risk of curarisation in so small a patient.

The infant died the next day.

Less than a month later two more cases of congenital atresia of the oesophagus were admitted to St. Antonius Ziekenhuis, and operated on by Dr. Brom.

In both these cases the infants were induced with cyclopropane, oxygen, and ether, and brought to a stage of incipient apnoea. Laryngoscopy was then performed and the trachea intubated as before with a Magill Flexometallic tube size 00. The wide end of the tube was then joined with as short a connection as possible, to avoid undue dead space, to a small size re-breathing bag. In the 'concertina tubing' joining the endotracheal tube to the re-breathing bag was placed a handful of soda-lime wrapped in a piece of cotton gauze.

Basal oxygen and additional requirements of cyclopropane to maintain first plane (Guedel) anaesthesia were run into the circuit through the narrow limb of the metallic end of the endotracheal tube. When by removal of the pieces of the ribs, the rigidity of the chest wall was abolished and the tendency to paradoxical respiration started to become troublesome, a little pressure on the re-breathing bag during the inspiratory phase was sufficient to overcome mediastinal flap.

When the dissecting phase of the operation was completed and as little respiratory movement as possible was desirable, minute doses of tubo-curarine chloride were injected into the intravenous infusion.

Using Rowbotham, Organe, and Prescott's suggested scale of safe maximal initial dosage of two to two and a half milligrams per stone of body weight it was calculated that this was equivalent to 1 mgm. per three kilograms.

Five milligrams of Burroughs Wellcome 'Tubarine' brand of d-tubocurarine chloride were diluted to 10 cc. so that each cc. contained 0.5 mgm. of the drug.

The first baby on 21 June 1948 received two doses of 0.5 mgm., each dose resulting in complete apnoea for about 20 minutes, and controlled respiration was given as nearly as possible in the pre-operative respiratory rhythm of the patient.

The second baby, two days later, was in a much better general condition and weighed 3½ kgm. She received two doses of 0.5 mgm. and a further dose of 0.25 mgm. and again in this case each injection resulted in apnoea for about 20 minutes.

A noticeable feature (and in the first instance, a rather alarming one) was the extreme rapidity of the action. The apnoea was complete by the time that I had resumed my place at the head of the patient after going to the foot to give the injection.

Both these infants recovered completely from the anaesthetic immediately after the operation, before they left the operating theatre, and showed no signs of residual curarisation.

The soda-lime was changed every half to three quarters of an hour during the operation to avoid possible exhaustion of its absorptive properties and consequent insidious CO_2 build-up.

The first of these two infants to receive curare and controlled respiration died on the third post-operative day, the other survived and made a rapid recovery. Oral feeding was started on the eleventh day and the infant was discharged after three weeks feeding normally.

I had a letter from Dr. Brom in June of this year

saying that he had seen the little girl a month previously, that is 11 months after the operation, and she was eating anything and radiologically the oesophagus was working normally.

Within a fortnight of these two cases, that is early in July 1948, a similar case was admitted to the surgical clinic of Utrecht University Hospital and operated on by Dr. J. F. Nuboer, the Professor of Surgery. I gave a similar anaesthetic and the immediate post-operative condition of the baby was excellent but the child did not survive more than a day or two.

These cases convinced me that the best anaesthetic for intrathoracic oesophageal anastomosis was cyclopropane, using the controlled respiration technique.

In February 1949, a few days after I took up my appointment in Johannesburg, a child was admitted to the Transvaal Memorial Hospital for Children, and operated on by Mr. David Adler.

I gave the anaesthetic but unfortunately had not the necessary equipment for giving cyclopropane or for carbon dioxide absorption, and so I gave again nitrous oxide, oxygen, ether by Phillip Ayre's technique. The paradoxical respiration and mediastinal flap was very troublesome, the violent movements actually tearing out the oesophageal stay sutures. The child died the next day.

On 1 April 1949, Mr. Adler had another case, and this time I was able to use a Foregger baby-size soda-lime canister, but I still had no cyclopropane. I gave the child one injection of 0.25 mgm. curare using a rather smaller dose because I was using ether as the anaesthetic. Apnoea was instantaneous but prolonged, in fact one and a half hours after the injection I was still doing controlled respiration at the end of the operation.

I continued giving controlled respiration for eight hours post-operatively and although the circulation was good throughout, there were only some gasping and inefficient attempts at spontaneous respiration. The pupils were widely dilated and the breath smelt strongly of ether. The child died after eight hours without regaining consciousness or developing spontaneous respiration.

In this case I am sure that the curare was not to blame but that the infant, a seven months premature baby weighing only 3½ lb., had received such a high concentration of ether that its undeveloped respiratory centre, although kept well oxygenated throughout, was not able to resume normal working.

Mr. Adler's third case at the Transvaal Memorial Hospital was operated on on 5 May 1949. On this occasion both cyclopropane and carbon dioxide absorption were available. Mr. Adler did a pre-operative bronchoscopy and suction to remove excessive mucus from the trachea and main bronchi, under cyclopropane anaesthesia. This resulted in an immediate marked improvement in the colour of the child and the patency of the tracheal airway. The face-piece was re-applied and the child was re-anaesthetised with cyclopropane until the jaw was well relaxed and the respiration was very shallow. Laryngoscopy was then performed and oral intubation with the largest possible Portex Magill tube size 0, flexometallic tubes not being available. Spontaneous respiration was maintained throughout the early stages of the operation, skin and muscle incision, costal resection, and pleural stripping to expose the oesophageal and tracheal structures in the mediastinum, with slight inspiratory assistance after the costal section to prevent paradoxical movements. Then, with two injections of 0.25 mgm. d-tubocurarine chloride, apnoea was effected and controlled respiration maintained throughout the intrathoracic procedures of detachment of the lower end from the trachea and oversewing the fistulous opening in the trachea, and the oesophageal anastomosis.

The absence of mediastinal and diaphragmatic movements greatly facilitated these delicate manoeuvres, and the right lung, while adequately retracted by the assistant, was periodically fully re-inflated at convenient stages in the operation.

The anastomosis was completed over a small rubber catheter passed into both open ends of the oesophageal parts from the operative field.

When the muscular layer of the chest wall was re-approximated, the soda-lime canister was removed and the re-breathing bag emptied of its cyclopropane and refilled with pure oxygen.

The lightening of the anaesthesia, and the gradual accumulation of carbon dioxide very soon re-established normal spontaneous respiration, quite adequate in volume.

Nitrous oxide and oxygen was then run in, 50% of each in continuous flow, and the expiratory valve was opened. In this way all the cyclopropane was eliminated by the end of the operation and the child was practically conscious and had an active cough reflex on extubation.

The infant was nursed in an oxygen tent for a few days. On the fifth day a little lipiodol was instilled into the pharynx under the X-ray screen and was seen to pass easily into the stomach. Feeding by mouth was then started and the intravenous drip, still being given through the original polythene cannula, was discontinued.

Before the child was sent home from hospital on the twelfth day, another lipiodol swallow was performed to demonstrate the patency of the oesophageal anastomosis and the absence of mediastinal leak.

The conclusions to be drawn, therefore, from my personal series of eight cases are:—

1. Early recognition is vital and barium should not be used to demonstrate the lesion. One pre-operative death can be ascribed to late diagnosis and the use of barium.

2. Infants tolerate general anaesthesia for major intrathoracic intervention very well, and the operation is greatly facilitated by its use.

3. Curare in suitable small doses can be used to produce apnoea.

4. The anaesthetic of choice is cyclopropane, giving high oxygen concentration, quiet respiration, easily induced apnoea, and rapid elimination.

5. Teamwork is a major factor in increasing the chances of success. Both of my cases that survived were the third case in two different series with the particular thoracic surgeon.

In conclusion I would like to plead for every chance to be given to these unfortunate infants, by a widespread

realisation of the relative frequency of the incidence, early diagnosis, and avoidance of barium in radiological investigations of suspected cases, and by allowing the advantages of experience and teamwork available in organised thoracic surgical units to increase the chances of success.

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ESSENTIAL HYPERTENSION

ITS CONTROL BY A NEW METHOD

A PRELIMINARY REPORT*

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Implicit in the control of hypertension is the prevention of arteriosclerosis; for, with certain exceptions, such as the decrescent sclerosis of Allbutt and the sclerosis associated with the name of Mönckeberg, it is now generally agreed that arteriosclerosis is the direct result of high blood pressure.

If we exclude renal hypertension, the localized hypertension of aortic coarctation and the hypertensions associated with pituitary and adrenal dysfunction, then the vast majority of cases fall into the group to which Frank in 1911 gave the name of *essential hypertension.* It is with the control of the blood pressure in this group, heterogeneous though it might turn out to be, that I am concerned to-night.

I need not stress what the control of arteriosclerosis would mean in terms of reduction of morbidity and mortality rates. Under ordinary conditions of practice, arteriosclerosis is the commonest single cause of ill-health and death.

Recently, I have had occasion to subject to a clinical trial a new method of treatment. The results have proved so interesting that I have decided to present a preliminary report on the treatment of essential hypertension with thyroid extract.

RATIONALE OF TREATMENT WITH THYROID EXTRACT

There were three reasons and one accidental observation which prompted me to use thyroid extract.

We have been taught that essential hypertension is chiefly a diastolic hypertension; that in this condition the diastolic pressure is disproportionately raised when compared with the systolic elevation and finally, that although the systolic pressure may fluctuate considerably, the diastolic pressure tends to remain relatively constant.

It follows from this that if one could find something to lower the diastolic pressure one might find a satisfactory method of treating essential hypertension. For this reason I had long been interested in the diastolic hypotensions, classified below:

DIASTOLIC HYPOTENSION

Central Causes.	*Peripheral Causes.*
1. Heart block.	1. Soldier's Heart (Effort Syndrome, D.A.H., etc).
2. Aortic incompetence.	2. Anaemia.
3. Rigid aorta.	3. Fever.
4. Patent ductus arteriosus.	4. Pregnancy.
5. Arterio-venous aneurysm.	5. Beri-beri.
	6. Paget's disease.
	7. Graves' disease.

The clue provided by a consideration of the diastolic hypotensions was Graves' disease. In this condition there is a low diastolic pressure caused presumably by excess thyroid secretion. It would be logical, therefore, to try the effect of thyroid extract and to note if it had a detensor action.

It is now generally accepted that the ultimate mechanism in essential hypertension is vaso-constriction. The salient feature of the clinical picture of hyperthyroidism is the marked vaso-dilatation. Here then was a second reason for using thyroid extract to lower the blood pressure.

A third reason lay in the conviction that the control

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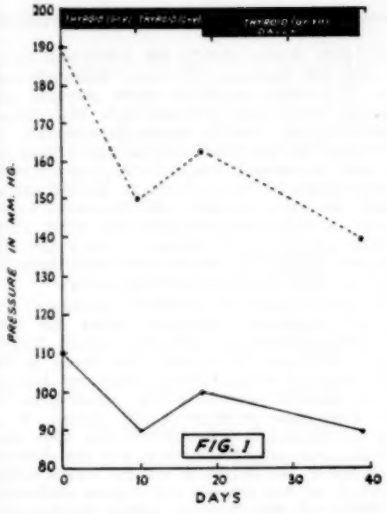

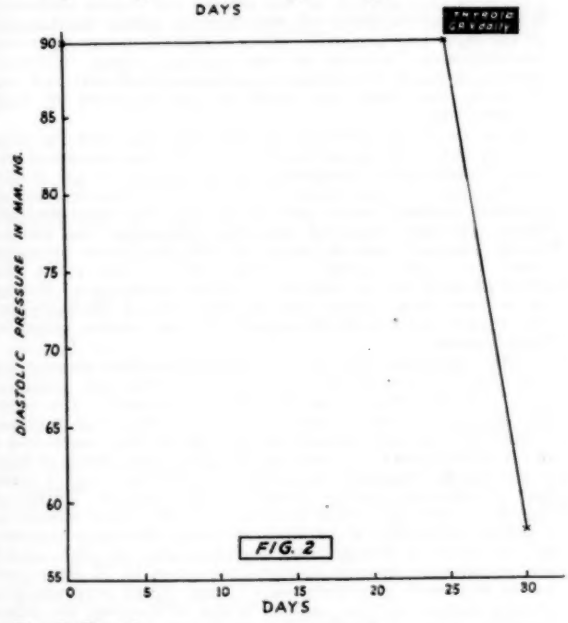

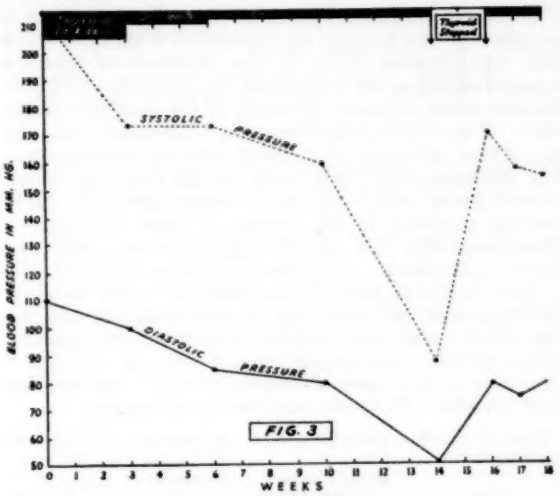

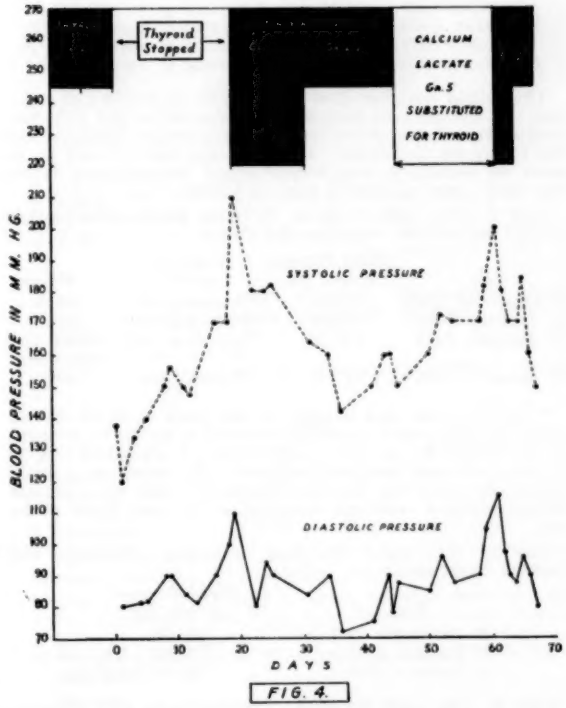

Fig. 1. Case 1.
Fig. 2. Note the rapid drop in diastolic pressure after thyroid gr. v daily for 10 days.
Fig. 3. This graph illustrates the effect of stopping thyroid administration.
Fig. 4. The thyroid preparation was given daily as was also the calcium lactate when this was substituted for thyroid.

of the blood pressure was intimately bound up with the work of the endocrine system. In support of this conviction is the fact that the blood pressure is found to be constantly elevated in such conditions as Cushing's syndrome, adrenal cortical hyperplasia, adenoma of the adrenal cortex, chromaffinoma (paraganglioma). In certain instances it becomes elevated at the menopause —a time at which a great deal of stress is thrown on the endocrine glands. In pregnancy, also a time of stress from this point of view, hypertension of unexplained origin occurs in some cases. On the other side of the picture, we find a depression in the blood pressure in such disorders as Addison's disease and Simmonds' disease. Further, in Graves' disease there is the diastolic hypotension, which we have already considered. All in all, this is an impressive body of evidence, strongly supporting the view that the blood pressure is under endocrine control.

It seemed probable, therefore, that the normal blood pressure of 120/70 mm. Hg represents a balance which may be disturbed either in the direction of increase (hypertension) or of diminution (hypotension). Hypertension could occur as the result of the excessive secretion of a blood-pressure-raising substance, or the *diminished secretion of a blood-pressure-lowering one.* The treatment of hypertension by the removal of one adrenal gland, which enjoyed a vogue some years back, had its rationale in the former of these alternatives. The possibility that essential hypertension might be due to a diminution in a secretion whose function it is to keep the blood pressure low, occurred to me at about this time; and, naturally, the thyroid secretion was the one which came most readily to mind in this context. What actually determined its use was an accidental observation in a case of obesity which I was treating with thyroid. This case also had hypertension.

Case 1. A.R., aged 56 years. *Diagnosis:* Obesity and hypertension.

Date	*Blood Pressure in mm. Hg*	*Treatment (daily)*	*Weight*
29 November 1948	190/110	Thyroid gr. v	198 lb.
9 December 1948	150/90	Thyroid gr. v	194 lb.
17 December 1948	162/100	Thyroid gr. vii	192½ lb.
7 January 1949	140/90	Thyroid gr. vii	189 lb.

The patient complained at the last visit of tremor and weakness. It was this case then which set the ball of this investigation rolling. I considered the drop in pressure significant and due to thyroid medication. I then thought that I would try its effect on normal or near normal blood pressures and in the first three cases my results were as follows:—

Case 2. A.S., aged 21 years. A young woman with marked obesity, particularly buttocks and thighs.

Date	*Blood Pressure in mm. Hg*	*Treatment (daily)*	*Weight*
15 December 1948	120/80	Thyroid gr. x	210 lb.
12 January 1949	120/80	Thyroid gr. xx	198 lb.
19 January 1949	122/75	Thyroid gr. xxv	(Wt. not recorded).
26 January 1949	125/75	Thyroid gr. xxv	190 lb.

It will be noted that in spite of very large doses of thyroid extract no appreciable alteration occurred in the blood pressure, though there was a 20-lb. weight loss. I attributed this to thyroid medication because on gr. xxv she developed a slight tremor indicative of thyroid overdosage and also because diatetic measures were not instituted as they had failed in the past.

Case 3. J.G., aged 38 years. *Diagnosis:* Fibrositis and essential hypertension.

Date.	*Blood Pressure in mm. Hg.*	
20 December 1948	135/90.	
14 January 1949	135/90.	Thyroid gr. v
18 January 1949	132/58 in five days.	

Case 4. J.S., aged 40 years. Pneumothorax with effusion. Early hypertension. Brachial arteries thickened. Aortic second sound, +.

Date.	*Blood Pressure in mm. Hg.*
24 January 1949	145/100grs. v daily for 24 days.
17 February 1949	120/60 „ „ „ „

Here then was a lead. In four consecutive cases the predicted result had come to pass. The odds against this occurring fortuitously must be considerable.

A. M. Fishberg in *Hypertension and Nephritis,* on page 712 of the 4th edition (1939) on the section on the treatment of essential hypertension and the sub-section organotherapy, states:

'Percy (J. Amer. Med. Assoc. (1912): **59,** 1708) and others claimed to have observed reduction in blood pressure from the administration of thyroid extract to some patients with hypertension. Perhaps these were patients with both hypertension and hypothyroidism for in most hypertensive individuals thyroid extract has no effect on the blood pressure. I have, however, seen occasional symptomatic improvements following the administration of small doses of thyroid extract (2 to 3 grains daily) in obese women with climateric hypertension and stigmata of myxedema, though the basal metabolism was not below normal in all instances. As a rule, the blood pressure was not affected by the thyroid medication.'

In *Vascular Sclerosis* Eli Moscowitz (1942) states:

'*The relation of hypertension to Graves' syndrome* ... In that broad group of conditions combined under the term Graves' syndrome (neurocirculatory asthenia, formes frustes, exophthalmic goiter) clinicians are agreed that there is frequently a persistent elevation of the systolic pressure. Usually in the early stages the diastolic pressure is low, which gives rise to the characteristic high pulse pressure of this disease. If, as frequently happens, the disease is not arrested, one finds after a number of years that not only the systolic but the diastolic pressure rises; furthermore, the pressures are no longer labile, a property characteristic of this disease, but remain stationary. If observation continues, one finds that the patient has acquired all the signs and symptoms of true hypertensive disease, with arteriosclerotic changes in the various organs (coronary disease, myocardial insufficiency, nephritis, diabetes) and that he finally dies from the results of one or more of these manifestations.'

These references indicated not only that the work had been done by Percy and others but that thyroid medication had also proved ineffective or dangerous, for it was not in use to-day. Furthermore, it was stated that in most hypertensive individuals, thyroid extract had no effect on the blood pressure. Those who had improved were myxoedematous old women, though curiously enough many of them had basal metabolic rates 'not below normal'. Further still in these cases 'the blood pressure was not affected by thyroid medication'. Passing on to Moscowitz, it was obvious that thyroid administration was dangerous as hyperthyroidism was one of the causes of hypertension!

Closer examination of Percy's reference revealed the arresting title: *Thyroid Extract in Nephritis: A preliminary statement of a new and effective method of the treatment.* The paper describes *two* cases of *nephritis,* one of which had a goitre, treated with thyroid extract, and though in both there was a fall in blood pressure, it was the changes in the urinary findings which chiefly interested the author. Apart from this I could find no reference to the subject in the available British or American literature. How little the use of thyroid extract as a detensor is present in the minds of physicians to-day is shown by the work of Evans and Loughnan, who in 1939 carried out an extensive investigation into the action of 33 drugs used in the treatment of hypertension. These drugs were specially chosen because of their reputed action in lowering the blood pressure. After 18 months' follow-up they reported that they were useless. Thyroid extract was not among the drugs used. In the *Index Medicus* of 1929 there is a reference in the German literature (Therap. d. Gegeuw. 70,191. April) to the favourable results obtained by Molnar, with thyroid tablets in hypertension. I have been unable to obtain the journal concerned.

Before proceeding to the analysis of results and the presentation of cases, I would like to draw your attention to a very significant physical sign which occurred at some time or other in the majority of those who responded to treatment. It may have occurred in all, but as it was not possible from the very nature of the investigation to take readings as frequently as I would have liked, I might quite easily have missed its occurrence. This physical sign is well known in cases of diastolic hypotension, viz, the persistence of the beat at the elbow, when one is taking the blood pressure, down to very low levels, to 30 mm. Hg, 20 mm. Hg, and even to 0. Cases developed this sign in the course of thyroid medication.

Here are a few examples:—

Patient.	Age in Years.	Date.	Blood Pressure in mm. Hg.	Treatment.
Mrs. A.	70	August 1940	260+/130	
		October 1940	260+/140	
		February 1949	260+/130	Thyroid gr. v daily.
		March 1949	150/80	Gr. ii daily dose reduced to gr. i and later gr. ½.
		25 May 1949	190/100...0	Gr. ½ daily.
		30 June 1949	155...0	
Miss P.	75	20 January 1949	190/95	Thyroid gr. v daily.
		27 January 1949	140/90	Thyroid gr. v daily.
		28 April 1949	150/70	Thyroid gr. i daily for 4 weeks.
		2 June 1949	150/70...20	On gr. i daily.
		18 August 1949	110/60...40	
Mr. H. G.	65	7 February 1949	250/110	Thyroid gr. v to x daily.
		30 June 1949	178/86	Thyroid gr. ii daily for 6 weeks.
		6 October 1949	150/70...55	
Mr. K. Eunuchoid under testosterone treatment—somewhat obese, therefore given thyroid in addition.	28	23 September 1949	120/70	
		15 October 1949	120/70	Thyroid gr. v daily.
		4 November 1949	After 20 days, 116/60...0	
		16 November 1949	After 32 days, 120/...0	
		26 November 1949	After 42 days, 116/60...0	
Mrs. C.	60	6 October 1949	300/130	Thyroid gr. v daily.
		20 October 1949	220/90...50	Thyroid gr. v daily.
		17 November 1949	200/85...40	Thyroid gr. i daily.

I have selected these five cases from about 20 in which this phenomenon occurred. It seemed to me reasonable to deduce from this that thyroid extract lowered the diastolic and systolic pressures by producing vaso-dilatation. I felt that my original assumption that it would act in just this way had been justified.

THE CASES

Since beginning this trial over a year ago, I have given thyroid extract to over 50 cases. Two did not have hypertension. The remainder were all hypertensive. No attempt was made to differentiate or select. All cases were treated irrespective of what the cause of the elevated blood pressure might be. Smaller doses were given to the elderly and to those in whom coronary involvement was suspected.

The great majority of patients were in the older age groups (50 to 79) and many had one or other of the complications of hypertension and arteriosclerosis, viz. haemorrhage into the retina or vitreous, epistaxis, albuminuria, angina of effort, hypertensive cerebral attacks, hemiplegia. With one or two exceptions, they were all ambulatory.

In the first 50 cases the predicted response to thyroid administration occurred in 33, i.e. 66%. There was no response in 17, i.e. 34%. Cases about which I was uncertain were put into the 'No Response' Group.

In no case, and I consider this a very significant fact, was there an *elevation* of the blood pressure under thyroid medication. Among those who responded there were, of course, fluctuations, but these occurred below the original level.

The following is a selection from the cases showing a satisfactory response.

Case 5. Mrs. A.M.K., aged 63 years. *Complaint:* Swelling of ankles, giddiness, shortness of breath, palpitation.

For the past two to three months her ankles have begun to swell towards evening. She has attacks of palpitations and has become progressively short of breath and very giddy during the same period.

Physical Examination. Obese elderly subject. No albuminuria. Aortic 2nd sound, +. Blood pressure 206/136 mm. Hg.

Progress:

Date.	Blood Pressure.	Treatment.
14 April 1949	206/136 mm. Hg.	Thyroid gr. v daily.
21 April 1949	175/110 mm. Hg.	Thyroid gr. v daily.
5 May 1949	138/90 mm. Hg.	

She reports disappearance of all symptoms, i.e., no giddiness, no palpitations, no shortness of breath, no swelling of legs.

Case 6. Mrs. F. T., aged 56 years, housewife. *Complaint:* Headaches. Undue breathlessness on exertion.

She has been attending the Out-Patient Department since April, 1946.

Physical Examination. No albuminuria. Blood pressure, 205/110 mm. Hg.

Progress:

Date.	Blood Pressure in mm. Hg.	Treatment.
11 April 1946	230/130	
2 June 1946	210/130	
9 June 1949	205/110	Thyroid gr. x daily
16 June 1949	180/90	Thyroid gr. x daily.
23 June 1949	130/80...50	Thyroid gr. v daily.
30 June 1949	180/90...70	Thyroid gr. x daily.
7 July 1949	165/88...55	Not well. Did not take tablets for 5 days. Gr. iii.
28 July 1949	190/90	Gr. v daily.
25 August 1949	170/90	Gr. ii daily.
22 September 1949	160/90	Gr. i daily.
20 October 1949	134/85	Gr. i. Feels very much better. No headaches. No side effects.

Case 7. Mr. H.L., aged 44 years, shop-keeper, married. *Complaint:* Headache, front and back of head. Giddiness. Insomnia.

Duration, two months.

Physical Examination. No albuminuria. Blood pressure, 180/120 mm. Hg.

Progress:

Date.	Blood Pressure in mm. Hg.	Treatment.
6 October 1949	180/120	Thyroid gr. v daily.
20 October 1949	152/102	Thyroid gr. iii daily. Complains of slight tremor.
3 November 1949	122/82	Thyroid gr. ii daily.

The frontal headache has gone. Occasionally he has slight occipital headache. The giddiness and the insomnia have gone.

Case 8. Mr. T.D., aged 32 years, plumber, married. *Complaint:* Discomfort over front and left side of chest. Insomnia. Discomfort in chest not related to exertion.

Physical Examination. Blood pressure, 150/110 mm. Hg. No albuminuria.

Progress:

Date.	Blood Pressure in mm. Hg.	Treatment.
15 September 1949	150/110	Thyroid gr. v *nocte*.
29 September 1949	150/98	Thyroid gr. v b.d.
13 October 1949	108/68	Thyroid gr. v daily. Complains of symptoms due to overdosage especially tremor. Thyroid gr. ii.
27 October 1949	135/72	Gr. ii *nocte*.

The discomfort has gone. He is now sleeping well. His wife now approves of him. He was a very difficult man to deal with before treatment.

Case 9. Mr. B.I., aged 70 years. *Complaint:* Swelling and aching of the feet and a heavy feeling in the head.

Duration, some years.

Physical Examination. A thin elderly subject. Both ankles swollen, right more so than left (? old thrombosis). Blood pressure, 195/100 mm. Hg. No albuminuria. Heart on screening: Hypertensive configuration. Left ventricle enlarged.

Progress:

Date.	Blood Pressure in mm. Hg.	Treatment.
28 September 1949	195/100	Thyroid extract gr. i. daily.
18 October 1949	170/90	Thyroid extract gr. i daily.
23 November 1949	155/90	Thyroid extract gr. ½ daily.

He states that he is feeling mentally and physically better than for years past. Aching in legs and swelling have gone. The heavy feeling in the head is no longer present.

Case 10. Mrs. C.H., aged 60 years. *Complaint:* Noises in head. Headaches, back of head. Giddiness (tottered about in street).

Headaches for many years. Recently influenza and since then severe buzzing in the ears. Giddiness for nearly as long as the headaches.

Physical Examination. Tall, thin subject. Deaf. Blood pressure, 214/110 mm. Hg. Numerous extra-systoles. No albuminuria.

Progress:

Date.	Blood Pressure in mm. Hg.	Treatment.
28 July 1949	214/110	Thyroid gr. v. b.d.
18 August 1949	174/100...80	Thyroid gr. v daily.
8 September 1949	174/85	Thyroid gr. iii daily.
6 October 1949	160/80...30	Thyroid gr. iii daily.
3 November 1949	88/50...40	No extra systoles noted. *Off Thyroid.* States that headaches have gone. Giddiness has gone. Still worried by noises in ear which, however, are less. Feels better than she has felt in past 18 months.
17 November 1949	170/80	Some extra-systoles. Thyroid gr. iii daily.
25 November 1949	158/75	Thyroid gr. iii daily.
2 December 1949	155/80	Thyroid gr. iii daily.

Case 11. Miss A.P., aged 74 years. *Complaint:* Severe headaches, giddiness.

In April 1948, while on a voyage to England, she fell down the gangway and injured her head. She has been worried about after-effects. She was referred to physicians after investigation by neurologists who found no evidence of fracture or of intracranial damage.

Her headaches are occipital and very severe. Giddiness extreme: changing position from upright to prone causes 'blackout'.

Physical Examination: A well-built, well-nourished, elderly subject in full possession of her faculties. No albuminuria. C.V. Syst. Brachial arteries thickened, tortuous and locomotive. Blood pressure, 190/95 mm. Hg. Heart not enlarged.

Progress:

Date.	Blood Pressure in mm. Hg.	Treatment.
20 January 1949	190/95	Thyroid gr. v daily.
27 January 1949	140/70	Headaches and giddiness gone. Thyroid gr. x daily.
3 February 1949		Not feeling well. Breathlessness and choking sensation. Gr. v daily.
7 February 1949	170/60	Has not taken thyroid for past week as it was upsetting her. Gr. v daily.
3 March 1949	148/65	Missed several doses as untoward symptoms occurred. Gr. v daily.
17 March 1949	170/90	Missed several doses. Gr. v.
31 March 1949	160/80	Gr. v daily for 4 weeks.
28 April 1949	150/70	Took tablets only on 3 or 4 days a week. Gr. i for 4 weeks.
2 June 1949	150/70...20	Felt much better. Has lost 10 lb. since beginning of treatment. Gr. i daily.
30 June 1949	150/70...40	Still no headaches or giddiness; feeling remarkably well. No drug effects, also sleeping better now than before taking tablets. Gr. i daily for 2 months.
18 August 1949	110/60...40	Feeling very well. Gr. i every other night.
15 September 1949	140/70	Gr. i nightly.
13 October 1949	134/75	States that she has recovered 1 lb. of the 10 lb. lost. Gr. i daily.
10 November 1949	140/64	Gr. i daily.
24 November 1949	170/84	Not feeling well. "I think the pills are different, doctor." Brand changed, gr. 2½ daily, prescribed.
5 December 1949	130/55...0	Thyroid gr. i daily.

Case 12. Mr. H.G., aged 67 years, widower, shop assistant. *Complaint:* Headaches, severe, four to five months. Giddiness 12 months. Breathlessness many years.

Headaches occipital. Giddiness so severe at times that he walks 'like a drunken man'.

Physical Examination: Elderly, thin subject. No albuminuria. *Respiratory System:* Emphysema. *C.V.S.:* Brachials thickened, tortuous and locomotive. Heart not enlarged. Blood pressure, 250/110 mm. Hg.

Diagnosis: Hypertension and emphysema.

Progress:

Date.	Blood Pressure in mm. Hg.	Treatment.
7 February 1949	250/110	Thyroid gr. vii daily.
10 February 1949	225/110	Thyroid gr. vii daily.
17 February 1949	185/100	Thyroid gr. vii daily.
24 February 1949	180/100	Complained of weakness and choking sensation. Gr. v daily.
3 March 1949	200/100	Gr. x daily for 7 days.
10 March 1949	180/80	Increased discomfort and choking. Thyroid stopped for 7 days.
17 March 1949	200/90	Gr. iii daily.
31 March 1949	180/92	Gr. v daily.
28 April 1949	190/100	Gr. v daily.
2 June 1949	190/90	Gr. vi daily.
30 June 1949	178/86	Gr. iii daily.
25 August 1949	180/94	Complains of discomfort. Thyroid stopped for 14 days.
8 September 1949	194/90	Gr. ii daily for 4 weeks.
6 October 1949	150/70...55	Gr. ii. Feels better than he has felt for years. Before treatment his vision was not clear; "flickering". This has gone and his vision is clear.
17 October 1949		Admitted to hospital with right hemiplegia. Had been looking after an ailing sister for past 2 months. On 7 October 1949 she "took a turn for the worse". He was very worried about her and spent many sleepless nights looking after her. She died the day after he was admitted. Blood Pressure 150/84 mm. Hg. Thyroid stopped.

Date.	Blood Pressure in mm. Hg.	Treatment.
17 October 1949 to 12 November 1949		Blood Pressure at about same level.
16 November 1949	170/70	
18 November 1949	170/100	
19 November 1949	210/110	Gr. iii daily.
21 November 1949	200/94	Gr. v daily.
26 November 1949	184/98	Gr. x daily.
27 November 1949		Complained of choking sensation. Reduced to gr. v daily.
29 November 1949	170/86	Gr. 2½ daily.
30 November 1949	160/86	Gr. 2½ daily.
3 December 1949	184/96	Gr. 2½ daily.
7 December 1949	150/75	Gr. ii daily.

Case 13. Mrs. A., aged 70 years, widow, consulted me on 3 July 1940. She told me then that she had had a high blood pressure for many years. She suffered from occipital headaches, giddines and palpitations, and buzzing in ears. She has 'attacks' of severe headache, giddiness and vomiting (? hypertensive cerebral attacks).

9 February 1949. Examination revealed thickened, tortuous and locomotive brachials, a cardiac impulse just within the anterior axillary line and an accentuated aortic second sound. Her blood pressure was 260+/130 mm. Hg. No albuminuria.

Progress:

Date.	Blood Pressure in mm. Hg.	Treatment.
3 July 1940	260+/130	
14 October 1946	260+/140	
9 February 1949	260+/130	Thyroid gr. v nightly for 3 nights, then gr. x for 3 nights.
15 February 1949	220/110	Discomfort experienced so given gr. v daily.
23 February 1949	240/110	Still complaining of symptoms of overdosage. Gr. 2½ daily.
2 March 1949	150/80 Right arm. 160/90 Left arm.	
16 March 1949	190/100	Missed several doses.
30 March 1949	230/100	Missed more doses. Thinks dose excessive. Reduced to gr. i daily.
6 April 1949	180/80	Gr. ½ daily.
27 April 1949	165/100	Gr. i daily.
25 May 1949	190/100...20	Still complains of symptoms (overdosage); put on gr. i every third day.
30 June 1949	150/...0	Feeling very well. No headaches, no giddiness, buzzing in ears which was a constant feature has all but disappeared. Gr. i every other day.
23 August 1949	190/110	Gr. i daily.
6 September 1949	174/80	Gr. i daily for 2 months.
2 November 1949	185/90	Gr. ii daily.
14 November 1949	164/90	Symptoms of overdosage. Thyroid stopped.
15 November 1949	140/...10	
16 November 1949	185/...10	
18 November 1949	162/90	
19 November 1949	175/90	
21 November 1949	190/100	Thyroid resumed. Gr. i daily.
23 November 1949	160/90	Gr. i daily.
30 November 1949	170/85	Gr. i daily.

The results achieved in cases 11, 12 and 13 are especially worthy of comment. Here were three elderly hypertensives with thickened, tortuous and locomotive brachial arteries where one would have expected no result at all. Yet all three responded satisfactorily.

Note.—In the cases described above and below the thyroid dosage given is the *daily* dose unless otherwise stated. The stated amount was given in one dose, usually at night.

Let us now analyze the cases which did *not* respond to treatment. There were seventeen in all and I have tabulated them as follows:—

No.	Initials.	Age in Years.	Comment.
1	Mr. C.	40	Treated for one week, gr. v daily.
2	Miss A. S.	21	No hypertension. Obesity treated with large doses, gr. x to gr. xxv. No change in blood pressure after 6 weeks.
3	Mr. W. F.	60	Angina of effort. Treatment discontinued.
4	Mr. J. M.	58	Angina of effort. Treatment discontinued.
5	Mrs. A.	50	Three months gr. v daily. Albumin+.
6	Mrs. M.	58	Six weeks on gr. v daily. Albumin +. Intravenous pyelogram showed gross dilatation of right ureter and right hydronephrosis.
7	Mrs. A. M.	35	Polycystic kidneys; gr. i daily for 5 weeks.
8	Mr. A. F.	19	Chronic glomerulonephritis. Gr. v daily for 13 days.
9	Mrs. P. B.	59	Nephrosclerosis. Albumin ++. Gr. ii daily for 8 months.
10	Mrs. V.	40	Unilateral hypoplastic kidney. Admitted in hypertensive cerebral attack. Thyroid gr. x for 5 days. Gr. xv for 6 days, gr. xx for 2 weeks. No response. Blood Pressure came down immediately on removal of the kidney and was at same level 2 months later.
11 12 13	Mrs. L. Mrs. V. D. H. Mrs. K.	50 51 48	All recent cases 4—8 weeks treatment. Some of thyroid used probably inert. (see below).
14	Mrs. L. M.	48	Diabetic. 4 weeks on gr. v.
15	Mrs. V. W.	61	Came in with hemiplegia. Put on Thyroid gr. v. Increased to gr. x and later to gr. xv. No response. Developed transient complete ophthalmoplegia on the right side. Thyroid believed inert. New brand, gr. x daily caused tremor and discomfort. Dose now gr. v. Has been on this for 14 days. Had had continuous headaches since admission, but none during the last week. Purpuric rash on arm after taking blood pressure. No evidence of renal involvement.
16	Mrs. V.	51	22 December 1947: Blood Pressure 200/120 mm. Hg. 15 August 1949: Blood Pressure 200/120 mm. Hg. Gr. v daily for 3 weeks. Discomfort. 23 August 1949: Blood Pressure

No.	*Initials.*	*Age in Years.*	*Comment.*
16	Mrs. V.	51	190/110. Gr. 2½ daily. 26 November 1949: Blood Pressure 185/100. Gr. 2½ daily. Feels better. Remarkable change in complexion—muddy to alabaster. (slow response?; doubtful).
17	Mrs. M.S.	52	7 September 1949: Blood Pressure, 235/140 mm. Hg. Gr. x for 1 week. Gr. v in second week. Tremulous. 21 September 1949: Blood Pressure, 200/100 mm. Hg. Gr. 2½ daily. 2 October 1949: Blood Pressure, 210/130 mm. Hg. Gr. 2½ b.d. 21 November 1949: Blood Pressure, 212/112...0. Gr. ii b.d. Feels better. Remarkable change in complexion —muddy to pink. (Slow response? doubtful).

It will be noted from a consideration of this list that in five and possibly in six out of the 17 there is evidence which would strongly incriminate the kidneys as the cause of the hypertension. Perhaps the number of cases is not sufficient to enable one to come to any definite conclusion, but it seems to me that the renal hypertensions do not respond to thyroid administration, the reason probably being that there is another mechanism at work which takes precedence over others. The object of this mechanism is to force an adequate amount of blood through the kidneys at all costs.

In a number of cases which failed to respond there was no question of any renal basis for the elevation of the blood pressure. Is the resistance in these due to changes in the smaller vessels which are now incapable of dilating? In other words is there a vicious circle—hypertension causing arteriosclerosis and the arteriosclerosis maintaining it? It is the old vexed question of whether arteriosclerosis can be responsible for hypertension, though cases 11, 12 and 13 would tend to disprove this in view of the remarkable response to treatment.

There is a further possibility that one should consider. Is it not possible that, in this clinical group of essential hypertension, other disturbances of the endocrine balance than the one postulated, are playing a part in elevating the blood pressure in certain cases? This, and other related questions will probably only be answered when sufficient cases have been studied.

THE TREATMENT

As a result of what you have heard, you may proceed to treat your hypertensives with thyroid. Let me warn you at the outset not to make your task more difficult by using inert or inactive preparations.

About a fortnight ago, my out-patients, who had all been behaving well, suddenly began to complain that their symptoms were returning and I noted that their blood pressure readings (which had remained at reasonable levels for months past) had begun to rise again. Needless to say I was much disturbed at this unaccountable turn of events until one of my patients said that the last lot of pills 'were different'. A visit to the dispensary led to the discovery that corresponding to the period when the results of treatment had become unpredictable, there had been a change from one brand of thyroid preparation to another.

Dosage. The doses originally used were on the heroic scale. They were so partly because I had been using large doses in the treatment of obesity and partly because I believed that only large doses would achieve the necessary result. I do not regret having done so because I learned in consequence that the effects of overdosage were not to be feared.

I now give a young hypertensive (up to the age of 50 years) a dose of gr. v daily for a week. If there are no symptoms of overdosage (and this is exceptional) I continue until the blood pressure has come down. I then reduce the dose by gr. i a week and decide by trial and error what the maintenance dose is to be. This may be anything from gr. ½ to gr. iv.

With occasional exceptions, I now give elderly subjects an initial daily dose of gr. iii. To some I have given an initial dose of gr. i with excellent results. An elderly subject of 70 years with a blood pressure of 190/100 mm. Hg and moderate left ventricular enlargement was given gr. i for three weeks. His blood pressure came down to 170/90 mm. Hg. Gr. i was continued for another five weeks when his pressure was found to be 150/70 mm. Hg. There was a regression of all symptoms on this dosage. He was then put on a maintenance dose of gr. ½ and has remained well since.

The important consideration in elderly subjects is to go on long enough and not be disappointed if at first there is no response. I feel that in a number of my earlier cases I gave up too soon. I would be encouraged to persevere if my patient showed that he or she was sensitive to increase in dosage or to the original dosage, i.e. that such symptoms as palpitations, a choking feeling in the root of the neck, breathlessness, tremor and weakness were easily elicited, for I have found that these are the patients who sooner or later respond. *I would, therefore, continue for* 3-4 *months before desisting.* The majority of those who respond, however, will have done so very much sooner.

How long should treatment be continued? If the rationale on which it is based is correct, then it follows that a maintenance dose varying in each case will be necessary throughout life. This is supported by my experience on stopping thyroid and also by what occurred when patients inadvertently received an inactive preparation. In both instances the blood presure went up within a fortnight and came down when the patients again received thyroid or when they were put on an active preparation.

I was much impressed by the resemblance of the symptoms and signs of overdosage to the clinical picture of Soldier's Heart. Overdosed cases were cases of Effort Syndrome which one could 'cure' within a few days by discontinuing thyroid. I would like to reiterate here that there is nothing to fear in these symptoms, alarming though they may appear to the patient. I feel that our attitude towards them should be analogous

to that towards the symptoms of overdosage with insulin. Just as we all consider it a good thing that the diabetic on insulin should experience the symptoms of hypoglycaemia early on in treatment, so too, is it advisable that the hypertensive should experience the symptoms of thyroid overdosage. He will then know what is happening and do something about it.

We must conquer our thyrophobia if we are to treat hypertension adequately. Several of my cases with evidence of cardiac hypertrophy have been on thyroid for nearly a year without suffering any ill-effects. On the contrary they have all felt better than for years past.

The point of sensitivity to thyroid and to change of dose also interested me in view of the similarity to what one obtains in myxoedema, where (if the maintenance dose is gr. i and it is increased by as little as gr. ½) untoward symptoms at once appear. A comparable feature is the rapidity with which oedema develops in Addison's disease when the salt intake or the cortical extract is slightly increased, and also the ease with which a patient with diabetes insipidus becomes water-logged when the dose of vasopressin is increased. It seemed to me that in this feature common to four endocrine conditions, I had confirmatory evidence that in hypertension also I was dealing with an endocrine disorder.

What are the *contra-indications* to the use of thyroid in the treatment of hypertension? There may be others, but to date I have found one only and that is Heberden's angina. Cases giving a history of angina of effort should not be given thyroid. The two cases in this series both complained of a greatly increased number of attacks on daily doses of gr. iv and gr. v respectively. The explanation of this lies in the fall of blood pressure and in consequence the diminution in the amount of blood entering the coronary arteries.

Care must also be exercised not to lower the blood pressure too much or too rapidly, because of the ever-present danger of thrombosis in an old atheromatous artery. I think that experience will show that a blood pressure just above what it should be for the patient's age will be the one at which he will feel best and therefore the one at which the maintenance dose should be aimed. During the period of trial it might be justifiable to use dicumarol in an attempt to prevent thrombosis if the blood pressure is coming down too rapidly.

Before leaving the subject of treatment one must not omit to stress the importance of prophylaxis. The control of hypertension for all practical purposes means the prevention of arteriosclerosis. On the general practitioner, therefore, will devolve the responsibility of preventing coronary thrombosis, cerebral arteriosclerosis, cerebral haemorrhage and cerebral thrombosis, nephrosclerosis, hypertensive cardiac failure, diabetes, arteriosclerotic peripheral vascular disease and a number of other conditions having their origin in hypertension and arteriosclerosis. It will be his responsibility because, as the family doctor, he will be the one to encounter hypertension in its earliest phases. Should he be doubtful whether he is dealing with a case of early hypertension, there is no reason why he should not use thyroid extract in a therapeutic test.

Before concluding I would like to answer a criticism that might be raised against my view that hypertension is a sign of hypothyroidism. Why, one may ask, if this is the case, are not all hypertensive patients myxoedematous and all cases of myxoedema hypertensive? My reply is that the clinical picture of myxoedema is not merely the result of insufficient thyroid secretion. It is probably the sum of hypothyroidism plus disturbances (in the direction of excessive or diminished secretion) in a number of other endocrine glands in much the same way as Graves' disease is not merely hyperthyroidism but also hyperpituitarism, hypopituitarism, hyperadrenia, hypoinsulinism and so on. In other words, the clinical pictures of both Graves' disease and of myxoedema are made up of varying components. No two cases of Graves' disease or of myxoedema are identical and every clinician has at some time or other encountered cases where it was impossible to say whether one was dealing with Graves' disease or with myxoedema. This being so, surely it is not inconceivable that other endocrine mechanisms militate against a rise in blood pressure in those cases of myxoedema without hypertension? That hypertension is a feature of myxoedema is shown by an analysis of the Johannesburg Hospital records, where it was found to be present in 42% of cases, a figure which corresponds very closely with those of Asher who in a recent article on myxoedematous madness states that he found it in six out of 14 cases, i.e. in 43%.

It is obvious that the present work has opened up a number of fields for exploration in the ancillary sciences as well as in the clinical ones. In the clinical field the first thing that must be done is to confirm or reject my impression that renal hypertension does not respond to thyroid medication. Then thyroid extract will have to be tried in the hypertension of pregnancy. This might well be an 'endocrine' hypertension, for the thyroid gland normally enlarges in pregnancy and it has been stated that it is in those cases in which the gland does not enlarge that hypertension is apt to develop. The role of the thyroid in cholesterol metabolism will have to be confirmed. By lowering the blood cholesterol, as it does in myxoedema, it might play a part in the prevention of atheroma. In three successive cases in which cholesterol estimations were made before and after medication in the course of this investigation it was found that the blood cholesterol fell.

The effect of treatment on hypertensive cardiac hypertrophy will have to be studied. Will there be a regression in heart size, as occurs after removal of the erring kidney in renal hypertension? Will cases of malignant hypertension respond? Finally it will be most interesting to see if hypertension among Natives will respond to this treatment. It is my impression that this condition is increasing among the Bantu.

I have indicated some of the work that will have to be done before this problem can be said to have been adequately studied. As a result of what already has been done, however, I feel it justifiable to assume that one of the functions of the thyroid gland is to lower the blood pressure. Essential hypertension is thus a manifestation of thyroid insufficiency.

I would like to express my gratitude to Dr. K. F. Mills, Superintendent of the Johannesburg General Hospital, for

making available the facilities for this investigation; to my former house physicians, Drs. L. M. Jacobs and K. I. Furman for their enthusiasm and kind assistance; to Mrs. Violet Shacksnovis for her kind assistance in the Out-Patient Department; to Mr. N. Paton, Assistant Dispensing Manager, Johannesburg General Hospital, for his kind co-operation; and last but not least to my patients who stoically endured the discomforts of overdosage in the early stages of this trial.

ADDENDUM

Since this paper was read, Cases 12, 15 and 17 in the table of unsatisfactory or doubtful responses have improved remarkably and may therefore be removed from the list. This brings the number of successes from 33 to 36. If the six renal hypertensives are excluded, then a satisfactory response may be claimed in 36 out of 44 cases of essential hypertension, i.e. in 82%. .

VERENIGINGSNUUS : ASSOCIATION NEWS

NATAL COASTAL BRANCH

ANNUAL REPORT OF THE HONORARY SECRETARY

In presenting to you the Annual Report, which it has been my privilege to prepare for the past three years, I do so with feelings tinged with regret. For this review must in the nature of things be regarded as the swan song of another Hon. Secretary of your Branch whose term of office has now, at his own request, expired. I have no doubt that others will be there to take up the threads and to serve the Branch and yourselves at least as willingly and with as much pleasure as I have endeavoured to do in the past.

At the Annual General Meeting on 17 February 1949, the Branch Council for the ensuing 12 months was announced as follows:

President: Dr. D. B. Pauw; *Vice-President:* Dr. H. Renton; *Hon. Treasurer:* Dr. R. Gowans; *Hon. Secretary:* Dr. A. Broomberg; *Members of Council:* Dr. Alan B. Taylor, Dr. J. Macfadyen, Dr. A. C. Copley; *Federal Council Members:* Dr. A. Broomberg, Dr. E. W. S. Deale, Dr. H. Grant Whyte, Mr. A. G. Sweetapple.

In addition, members were elected to Standing Committees as follows: *Library*: Dr. A. Broomberg (*Convener*), Dr. R. Elsdon-Dew, Dr. J. Friedlander, Dr. T. Armstrong, Dr. H. Coblans (co-opted).

Clinical: Dr. T. Armstrong (*Convener*), Dr. J. H. Symington (*Hon. Secretary*), Drs. B. Moshal, N. L. Mills, B. A. Dormer, J. C. Thomas, S. Disler, R. Mundy, A. G. Sweetapple, N. R. Pooler, G. Stafford Mayer, H. Grant Whyte.

Medical School: Dr. J. Drummond, Dr. J. Macfadyen, Dr. Alan B. Taylor, Dr. Broomberg, Dr. H. Grant Whyte, Dr. N. Steere.

Contract Practice Sub-Committee: Drs. Grant Whyte, Pauw, Broomberg, Deale.

Ethical Committee: In accordance with tradition the past five Presidents were appointed as follows: Mr. A. C. Copley, Mr. A. G. Sweetapple, Dr. J. S. Alexander, Dr. Alan B. Taylor, Dr. J. Drummond, with the President and Hon. Secretary, *ex officio*. There was no occasion for this Committee to meet during the year.

Representatives on Outside Bodies: Greater Durban Town Planning: Dr. L. Erasmus Ellis; *Durban Mountain Homestead:* Dr. H. H. Stott; *Natal Radium Trust:* Mr. H. C. Warner; *Juvenile Affairs Board:* Dr. Pauline Klenerman; *Anti-Tuberculosis Association:* Drs. A. Lewer Allen, D. Hooper, J. Drummond, J. Friedlander, T. G. Armstrong, W. F. Skaife, N. A. Rossiter, E. W. S. Deale.

National War Memorial Health Foundation: Dr. G. D. English. *Blood Transfusion Service:* Drs. D. F. Standing, H. Curwen. *Adult Education Council:* Dr. F. W. P. Cluver; *Liaison Committee with the Pharmaceutical Committee:* Drs. Pauw and Broomberg. *Federal Council Executive:* Mr. A. G. Sweetapple. *Federal Council Standing Committee on Health Services:* Mr. A. G. Sweetapple, Dr. Deale. *Federal Council Library Investigation Sub-Committee:* Dr. A. Broomberg. *Federal Council Central Contract Practice Committee:* Dr. H. Grant Whyte.

Meetings: Nine Council, three Business and seven Clinical Meetings were held. Attendances at Council Meetings were as follows: Drs. Pauw, 8; Renton, 5 (on leave); Broomberg, 9; Gowans, 7; Copley, 6; Macfadyen, 7; Taylor, 4 (on leave); Sweetapple, 6 (on leave); Grant Whyte, 6; Deale, 7.

Business Meetings: Three general meetings were called to discuss matters of vital importance which included the question of future National Health Services, Medical Aid Societies, Addington Hospital and certain classes of insured patients, increased representation on Branch Council, S.A. Medical Council levy, and other organizational and public relations questions.

Attendances on the whole were poor and reflected an apathetic attitude on the part of members at which your Council has been gravely concerned.

In issues such as these where the livelihood and independence of every medical man is threatened, your Council is justly entitled to deplore the fact that of over 360 members, only 40 or 50 are sufficiently interested to attend and express their views at these important meetings. Are the remaining members prepared forever to let the other fellow man the front line whilst they continue in the rôle of critics to occupy the grandstand seats and complacently look on!

Federal Council: Your Branch was fully represented at the three meetings of Federal Council held at Cape Town, Johannesburg, and Cape Town respectively. The last meeting coincided with the Medical Congress at which many members of the Branch were present.

Clinical Meetings:
Present.

62 King Edward VIII Hospital. 24 March. Demonstration of cases.
60 St. John Headquarters Hall. 8 June. Dr. T. M. Ling, Medical Director of the Roffey Park Rehabilitation Centre, Horsham.
80 King George V. Hospital. 21 July.
50 St. John Headquarters Hall. 19 October. Dr. O. Schmahann: *Signs, Symptoms, Effects and Administration of Intravenous Procaine.*
150 Red Cross House. 22 November. Professor C. H. Best: *Insulin and Diabetes. Choline and Cirrhosis of the Liver. Heparin and the Prevention of Thrombosis.*
45 No. 2 Committee Room, City Hall. 14 December. Talk by Mr. A. G. Sweetapple on *Some Surgical Impressions of the U.S.A.*

The outstanding clinical meeting of the year was that addressed by Prof. C. H. Best, the distinguished director of the Banting-Best Institute of Research at Toronto University. This brilliant lecturer will long be remembered by all those who were privileged to be present. The July meeting at King George V Hospital was also a most excellent one, very well attended and most enjoyable from every point of view.

Thanks are due to the Clinical Sub-Committee under Dr. Armstrong (Convener) and Dr. J. H. Symington, the indefatigable Secretary, for the wonderful fare provided in the seven meetings which were arranged. Clinical instruction is the very life blood of the Branch's continued existence, and your Council wishes to express its gratitude to all those who have made this instruction possible—to the lecturers, Hospital Superintendents and Staffs, technicians, projectionists, and last, but not least, to those who have provided refreshments on these several occasions.

I hope that in the year to come there will be still more, and still better clinical meetings, and that the Branch will be given the opportunity of listening to many more lecturers of the calibre of our brilliant Canadian visitor.

Membership: The roll at the close of the year contained 365 names—of these 49 are country members and 11 overseas members—representing an increase of 13 members; 31 new members were enrolled, 17 being transferred to this Branch from other Branches, whilst on the debit side 14 members

were transferred to other Branches and seven members resigned. The increase in membership is most gratifying and there is every reason to hope that your Branch will eventually be able to claim that every practitioner in the area which it subserves is a member of the Association. The aim and ideal must be 100% membership. Only in this way can we face the future with confidence, come what may.

Resignations were in most cases received from colleagues who had left the area, gone overseas or had retired from active practice on account of age.

Contract Practice: Several meetings of the Sub-Committee for Contract practice were held during the year and the following Medical Aid Societies and Benefit Funds were approved:—

Central News Agency Benefit Fund.
Natal Coal Owners Medical Aid Society.
Reynolds Bros.
Crookes Bros Ltd.
Gledhow-Chakas Kraal Sugar Co.

Several other applications were considered and rejected as they did not conform to the Association's requirements.

One of the largest proposed societies, that contemplated by the Natal Chamber of Industries, is now being considered and it is hoped that it will be possible to complete arrangements in the new year. Many thousands of industrial employees will benefit by this scheme which aims to provide medical benefits for the first time for non-European workers.

S.A. Medical Council: During the year it was unfortunately found necessary for the S.A. Medical Council to hold an enquiry in Durban into the conduct of a member of the Branch who was charged under Section 80 of the Medical, Dental and Pharmacy Act. The member concerned was found guilty and reprimanded.

Several other complaints were satisfactorily dealt with by your Council. I am glad to report that the Ethical Committee was not convened on any occasion.

Branch Office: The headquarters of the Branch at 112 Medical Centre was well patronized and members have been taking full advantage of the services provided, in particular, the duplicating service and the use of the library as a venue for meetings, etc. It is hoped that this will continue in the forthcoming year.

Medical School: This Committee met on two occasions. It is now confidently anticipated that final arrangements will be completed for the commencement of the Faculty courses early in 1950.

Bursaries: The Bursary Fund has continued to provide educational assistance where required. The Fund Committee is eager to receive applications for assistance should there be any members, who by reason of necessitous circumstances find it difficult to provide for the education of their children. Such applications should be made to the Hon. Secretary of the Branch, before the end of September of each year.

Library: Many additions were made to the shelves during 1949, books to the value of approximately £200 having been purchased. Your Sub-Committee wishes to express its most grateful thanks to Mr. L. Goldschmidt of Cape Town, for a gift of valuable volumes of the Cumulative Index Medicus, to Dr. R. D. Nelson for 58 bound volumes of Medical Clinics of North America, to Dr. D. F. Standing for copies of the *Journal of Gynaecology and Obstetrics*, and to all others who have contributed in cash or kind towards the establishment of the Library.

It is interesting to record that Federal Council has now set up a Sub-Commitee to investigate the question of Medical Libraries in South Africa.

I would once again appeal to members to make the fullest possible use of the Library. Any suggestions for new books, journals, etc., would also be greatly welcomed and appreciated.

Distinguished Visitors: Your Council was honoured and privileged to welcome and entertain two eminent medical visitors in the person of Prof. C. H. Best, the celebrated physiologist and Director of the Banting-Best Research Laboratory, Toronto University; and Dr. T. M. Ling, Medical Director of the Roffey Park Rehabilitation Centre, Horsham.

Both visitors addresed the Branch and the former was entertained at a dinner held by the Branch Council.

It is hoped that there will be many more such visits arranged. Their educational value is indeed inestimable.

Public Information Committee: This Committee consisting of Drs. F. B. Proksch, Pauw, Armstrong and Broomberg continued in its good work during the year.

A noticeable feature of its influence has been the conspicuous absence of sensational medical news in the local press. It is pleasing to record that the latter is making full use of the guidance and advice which this Committee is prepared at all times to provide.

Medical News Letter: The thanks of the Branch are due to Dr. R. Gowans who in the face of great difficulties has been able to produce this little journal regularly every month. The position has now, unfortunately, arisen where the present Editor finds it no longer possible to continue and unless some member with journalistic experience and enthusiasm is prepared to take over, the News Letter will discontinue publication.

It is a great pity that this should be so and I hope that some valiant member will be found who will be prepared to steer the paper and place it once again on a sound footing. The Association *Journal* is, of course, available for the publication of Branch news and the fullest use should be made of this medium. But it will not replace the News Letter in the hearts of the members of this Branch.

Annual Dinner: This function was again held at the Edward Hotel during July. Several guests were present and it was a very enjoyable affair. The attendence was, however, lamentably poor, only 36 members being present. Your Council will have to give serious consideration to the question of future annual dinners and would welcome any criticism or suggestions as to how these functions could be made more attractive.

If in a report one might also make a recommendation I would urge the Council to consider replacing the Annual Dinner by a function at which members and their wives could attend, i.e. a dinner-dance or similar function. There is no doubt that the ordinary traditional dinner does not hold any attraction whatever for the vast majority of the Branch members.

Assessment Committee: In view of the attention which has been given recently to medical fees by the S.A. Medical Council, Assessment Committees are being formed in all Branches whose duty shall be to draw up a tariff of average fees charged for medical services in the areas under their jurisdiction. This tariff will serve as a guide, not only to members, but also to your Council in the event of complaints being lodged by the public on the basis of excessive or exorbitant charges. It is indeed possible that Branch Councils may in the future be able to prevent many such complaints from reaching the Medical Council and thus save medical men a great deal of unnecessary expense, embarrassment and press publicity inasmuch as many of these cases will be dealt with *in loco* by the Assessment Committee. This should indeed be the ideal to be aimed at.

Benevolent Fund: Grants to certain beneficiaries have again been renewed by Federal Council.

During the year an appeal was made to members for funds to provide for the education of the children of a colleague in unfortunate circumstances. The result was most gratifying and your Council wishes to place on record its grateful thanks to all who so generously contributed.

Deaths: Once again it is my sad duty to record the decease of two esteemed members of the Branch. They were Dr. F. Gordon Cawston and Dr. F. W. Simson. To their families is extended the sincere condolence of their colleagues. They were both loved, respected, and masters of their craft. R.I.P.

An annual report to serve its purpose must be comprehensive and yet brief. It cannot present in detail all that has been done in the course of the year.

'The specious panorama of a year
But multiplies the image of a day—
A belt of mirrors round a taper's flame;
And Universal Nature, through her vast
and crowded whole, an infinite paroquet,
Repeats one note.'

The daily routine work, the vexed and vexing problems of existence, social co-operation, public relations, inter-professional difficulties and many other aspects of medical practice have had to be debated and the answers framed.

The office has been run as efficiently as always by Mrs. Brinkworth in her usual quiet and courteous manner, and once again may I record my thanks to her for services freely and willingly rendered.

To my colleagues on the Council, I also wish to express my personal keen appreciation of the unfailing co-operation which has been the spirit in which we have all worked together for the interests of the members of this Branch and the honour of the Association as a whole.

The Branch has built on good and solid foundations. With its present membership it can face the future with the confidence of which strength, solidarity, goodwill, co-operation and harmony are the fundamental ingredients.

For the moment the ominous rumblings of yesteryear have subsided and a temporary period of peace appears to have descended on the land. Let us not be lulled into an attitude of dangerous complacency however, for I have no doubt that sooner or later there will once again arise the demand for the enslavement of the profession in a nationalized health service. In the Transvaal recently 1,500 applications were received for 540 hospital posts. One-third of the profession was included in these applications!

One-third of the profession is seeking posts. This, to my mind, is the most significant symptom of a threat to its economic security.

In this city there is great development in all directions. And in the year ahead of us there may come about the fruition of many great projects. One of these—the Medical School—is now on the way to becoming a fact. I am sure that it will prove a fount of inspiration to us all, whether we are in practice or research, and that the standard of practice will be raised to those levels which only the presence of a Medical School in a city can achieve.

Let us strive, as in the past, to make the Natal Coastal Branch worthy of its members and its members worthy of the high traditions of medicine in South Africa.

The One Luxury which we cannot Afford is Apathy.

A. Broomberg,
16 January 1950. *Hon. Secretary.*

THE BENEVOLENT FUND

The following contributions to the Benevolent Fund during January 1950 are gratefully acknowledged:

Votive Cards: *In Memory Of*:
Mr. Geo. Gie *by* Dr. A. W. S. Sichel, Dr. G. C. Cruywagen.
Dr. C. M. Murray *by* Dr. J. C. Gie, Dr. A. W. S. Sichel, Dr. F. W. F. Purcell, Dr. and Mrs. D. P. Marais, Dr. and Mrs. R. Lance Impey, Dr. A. J. Ballantine, Dr. H. A. Moffat, Dr. J. S. du Toit.
Dr. S. K. Montgomery *by* Dr. A. W. S. Sichel, Dr. and Mrs. F. O. Fehrsen, Dr. Vernon Brink, Dr. and Mrs. R. Lance Impey, Dr. F. H. Dommisse and Dr. T. Fichardt, Dr. S. F. Silberbauer, Anonymous.

Total amount received from Votive Cards:	£17	15	6
Services Rendered To:			
Dr. D. van Binnendyk's son by Dr. C. H. Roux, Dr. R. L. van der Riet, Dr. F. D. du Toit van Zyl.			
Mrs. J. F. Murray *by* Dr. I. P. Schabort.			
Master S. Goetz *by* Dr. R. H. L. Townsend.			
Mrs. A. M. Rudolph *by* Dr. A. Culliner.			
Total amount received from Services Rendered	36	15	0
Donations:			
Dr. A. B. Taylor	2	2	0
Witwatersrand Medical Library—Sale of Books	1	0	0
Natal Coastal Branch Members	2	2	0
Southern Transvaal Branch Members	1	11	6
	£61	6	0

IN MEMORIAM

DR. STEPHEN KING MONTGOMERY

B.A. (1916), B.Sc. (1917), University Western Australia; M.B., B.S. (1927), F.L.S.; M.D., London University (1929); D.R. Edinburgh (1930); F.C.C.P. (1947). Major S.A.M.C. (1942-1945).
Author of *Crustacea. Brachura of the Abrolhos Islands.*

Dr. S. K. Montgomery died on 20 January 1950 at his home in Kalk Bay, C.P., after a prolonged illness.

He was born in Tasmania in December 1895, and as an infant was taken to New Zealand with his family. He returned to Perth, Western Australia, as a boy aged seven, and there he was educated, passing through school to the University of Western Australia, where he graduated B.A. with honours in 1916. After several years of military service with the Australian Army Medical Corps during the first Great War, he returned to Perth and continued his studies there, taking the B.Sc. with honours in Zoology and allied subjects. In 1920 he entered University College Hospital, London, as a medical student, and it was there that I first met Montgomery. He already displayed the characteristic energy and organizing ability that was to set the pattern for the remainder of his life. As Secretary of the Cricket Club, committee member of the student body of the hospital, and later a moving spirit in the University of London Student Union, he became widely known throughout the colleges and hospitals of the University of London. After taking the Conjoint qualifications in 1925 and the M.B., B.S. (Lond.) in 1926, he held house appointments at University College Hospital and the Tropical Diseases Hospital in London and at Newcastle. In 1937 he spent a year as Resident Medical Officer at the British Hospital in Port Said, Egypt, where he met Miss Gay Turtington, a nursing sister, who subsequently became his wife. Returning to London, Montgomery took the M.D. (Lond.), and then branched off into radiology, taking the D.R. (Edin.) in 1930 with high distinction. After a spell of practice in London, he emigrated to South Africa, joining a firm of radiologists in Johannesburg.

In 1938 he left Johannesburg for Cape Town to become a partner in a radiological practice here. The long and arduous years of preparation and training were now to bear fruit, and he rapidly became widely known as a highly skilled and widely read diagnostic radiologist. Despite the burdens of a busy practice and outside scientific interests, he became a frequent contributor of papers to professional journals and Medical Congresses, and he was a prolific writer of letters to the medical and lay press on matters of public interest. He was for several years External Examiner for the Diploma of Radiology of the University of Cape Town. In 1948 he became a member of the Federal Council of the Medical Association of South Africa, and in the same year, for his work on the radiology of the lungs, he was elected a Fellow of the American College of Chest Physicians.

Throughout his life Montgomery remained a student and a scholar. He was a bookish man, spending long hours each night keeping abreast in radiology, and in the general scientific field. His early training as a biologist left him with a life-long interest in the subject; during the last months of his illness, he was preparing to use the enforced rest from active practice on a study of the diatoms of the waters of the False Bay coast.

It is not generally known that he was a carcinologist of international repute. In 1931 his monograph on *Crustacea Brachyura of the Percy Slade Trust Expedition to the Abrolhos Islands*, together with the *Crabs of Western Australia*, was published in the Proceedings of the Linnean Society. This earned him the high honour of a Fellowship of the Society. It was characteristic of the thoroughness and patience which he devoted to all his work that 12 years were given to the preparation of the monograph; the result was a well-written and beautifully illustrated work.

In 1942, Montgomery took leave from his practice and joined the Union Defence Force, being responsible for the establishment from scratch of a complete radiological unit at

the Wynberg Military Hospital. In spite of war-time shortages of building material and facilities and of radiological equipment, he did not rest until the unit had become fully equipped, and was carrying out work of a high standard for a hospital that contained at times nearly 1,000 patients.

In 1945, as the war was ending and many hundreds of enlisted doctors were preparing to return to civilian life, Dr. Montgomery was elected to the Secretaryship of the Cape Western Branch of the Ex-Service Medical Officers Society, at a critical time in its fortunes, and he held the post until the middle of 1948, when a serious breakdown in health compelled him to relinquish it. All members of the group and particularly members of the committee who worked closely with him will always remember the almost incredible efficiency, drive and determination that he brought to this task. In spite of the claims of a large private practice, and the disability of failing health, he gave his strength and all his spare time during the day and at night to the task of protecting the interests of the ex-service doctors in their struggle for rehabilitation. 'Monty', as he was affectionately called by all, had become almost a hermit, holding nightly vigil over the affairs of the Society over a period of years, and grudging the little time he was compelled to give to social calls. There is no doubt that the strain of the war and the post-war years contributed to the breakdown that led to his early death. Many hundreds of ex-service medical officers in whose individual interests he fought so doggedly and selflessly, have reason to feel gratitude to his memory. For his work for the Society, Monty's name deserves to be inscribed in the Golden Book.

Outside his work, Dr. Montgomery had wide interests. A highly cultured man with a love of fine literature, he had a particularly intense interest in verse. An excellent memory enabled him to quote at will from the classical and contemporary poets, and he was never so happy as when declaiming a favouruite ode or sonnet. He was also a lover of games, particularly cricket; for him this was the King of Games.

Hard pressed as he was for time, nothing was permitted to interfere with his enjoyment of the game. He was always an active player and as late as 1946, turned out regularly each Saturday afternoon for his club. He had a profound knowledge of the history and rules of the game. I remember challenging him jestingly to name the number of ways in which a batsman could be out; without hesitation he correctly listed the nine ways of a batsman's downfall. He was fond of good music, and when time allowed, regularly attended the orchestral concerts at the City Hall.

He was a man of austere habit, deeply religious, and with a rare sense of loyalty and integrity. His own moral standard was so high that he found difficulty at times in understanding the frailties and the needs of weaker brethren. He had a hatred of injustice, or of what he considered offended the fitness of things. He was no appeaser. His dour and driving personality did not permit him to rest until he had expressed his opinions verbally or in print in no uncertain terms. This tendency to take fire easily sometimes led him into hasty judgments. Although socially of retiring disposition, his keen sense of humour and fund of general knowledge, as well as his intense interest in current events, made him an interesting companion.

Dr. Montgomery leaves a widow, a son and daughter.

P. Leftwich.

Dr. Montgomery was a partner in the firm of Drs. Olivier, Montgomery and Meyer from 1938 until the time of his death.

He wrote numerous articles on radiological subjects, which appeared in both South African and British Medical Journals. His interests were very wide, both in medical as well as in practical subjects, and his knowledge of contemporary and old authors and poets was extensive.

He did not confine his activities purely to the academic aspects of medicine but took an active part in the conduct of the Radiological Society and was a member of the Executive Council.

As Secretary of the Ex-Service Medical Officers Society he did not spare himself in working for the interests of his ex-Service colleagues.

He was a member of Federal Council and was keenly interested in the affairs of the Medical Association.

The above bare facts are set down to place on record the qualifications and the work he achieved in three countries—Australia, Great Britain and South Africa. In doing so we inform the Medical Profession of the passing of an illustrious and erudite member. But to those of us who had the privilege of knowing 'Monty' these details in no way give an adequate picture of the man himself, and thus cannot indicate the great loss we have sustained.

Stephen Montgomery was one of those fortunate men whose sincerity and clear-thinking, high principles and courage made a lasting impression on those he met. Whenever these qualities were required in debate and action, one always looked to see whether he was there to give expression to these ideals and he never failed or faltered.

Faithful and steadfast in all matters of principle, he was patient and generous towards those who did not share his views. 'Monty' was an upright man and his memory will serve as an inspiration to all those who were fortunate enough to know him.

J. P. de Villiers.
A. A. Meyer.

6, Dorp Street,
Cape Town.
16 February 1950.

PASSING EVENTS

Dinner in Honour of Dr I. J. Balkin

A very pleasant function took place on 1 February at the Automobile Club, Johannesburg, when over 60 past and present colleagues of Dr. I. J. Balkin, Honorary Physician, Johannesburg Hospital, assembled to do him honour on the occasion of his retirement from the honorary staff of the Johannesburg Hospital.

Prof. G. A. Elliott presided at the dinner, during the course of which the Chairman proposed the toast of Dr. I. J. Balkin. On behalf of all present, in addition to a large number who had sent apologies for unavoidable absence, Professor Elliott then presented Dr. Balkin with a canteen of cutlery.

Mr. Osburn, President of the Students' Medical Council of the University of the Witwatersrand, made a presentation of a tobacco bowl on behalf of the students.

Dr. Balkin replied to the toast. During the course of his reply, he told a number of stories about medical men in Johannesburg in the 'good old days'. He then donated a cheque to the Benevolent Fund of the Medical Association.

Dr. K. F. T. Mills, the Medical Superintendent of the Johannesburg Hospital, paid tribute to the many fine qualities of Dr. Balkin, and was able to inform him of the fact that the Hospital Board had appointed him to the Honorary Consultant Staff. He also conveyed greetings from the Matron and Nursing Staff.

A large number of those present, including Dr. Seymour Heymann, Dr. Balkin's first houseman; Dr. H. Bernberg, his last house physician; Dr. L. I. Braun, Mr. J. Douglas, Dr. P. Menof, Dr. J. Black, Dr. A. Broido, Dr. C. Duthie, Dr. J. Baynash and Dr. J. Edelstein, paid tribute to the many sterling qualities of Dr. Balkin, and all stressed his great humanitarianism.

This was also referred to by Dr. T. Schneider, who thanked Dr. Balkin on behalf of the Medical Association of South Africa for his magnificent gesture in making a donation to the Benevolent Fund.

Dr. Alice Cox, who stated that as a woman she wanted the last word, proposed the toast of Mrs. Balkin. This was received with acclamation.

A delightful evening then came to an end.

The National Advisory Council for Physical Education publishes a quarterly journal known as *Vigor* for the promotion of physical education, healthful living, recreation and sport in general. It is of a high quality and has been well received overseas. Medical practitioners should find much to interest them in this journal and, after they have read it, it could form a useful addition to literature supplied to waiting-room patients. It is issued quarterly at 1s. 3d. per copy or 5s. per annum. Application should be made to the Union Education Department, New Standard Bank Buildings, Pretoria.

BOOK REVIEW

HAEMOLYSIS

Hemolysis and Related Phenomena. By Eric Ponder. (Pp. 389 + vii. With 69 illustrations. 50s.) London: J. & A. Churchill Ltd 1948.

Contents: 1. Introduction. 2. Shape Changes Unaccompanied by Volume Changes. 3. Shape Changes Accompanied by Volume Changes. 4. Cytochemistry and Architecture. 5. The Kinetics of Hemolysis. 6. Inhibition and Acceleration of Hemolysis. 7. Hemolysis in Vivo. Appendices.

This is not an easy book to read, but it compels serious and close attention because the author's whole life-work has been identified so closely with the field of red cell investigation.

Dr. Ponder's name is inseparably associated with comprehensive studies of the mammalian erythrocyte and the present volume is an expansion of an earlier monograph written in 1934.

Much of the information is technically too advanced for the general reader, but this book is an essential reference text for all those interested in research on the problems of agglutination, haemolysis and related phenomena.

CORRESPONDENCE

MY COLLEAGUE AND I

To the Editor: In a small country village one does certainly strive hard to live at peace with everybody and especially one's colleague. One constantly keeps this end in view. But as a result one is often faced with highly disconcerting situations. For that reason I would like to know what my worthy confreres do in a case like the following:

Colleague X is of the very sociable type, fond of cocktail parties and obviously bent on cultivating all newcomers to the place, especially those in strategic positions, and provided things go his way, a very pleasant chap to deal with. So his efforts are often successful and occasionally a prize patient of mine, one who fits more in his milieu, falls to him.

If for no other reason than that of saving my face, I ascribe the defection of the patient to his having greater confidence in colleague X than in myself. And there the story should end. But it doesn't!

When colleague X gets into a tight corner with an ex-patient of mine, he most unabashedly confronts me with the patient and expects me to give assistance, even though it be with advice on the quiet. Should I refuse, I feel my name will be mud. And yet I feel I should.

'Disillusioned.'

7 February 1950.

RHEUMATISM AND ITS TREATMENT: KENDALL'S COMPOUND E

To the Editor: I was told only recently that a patient was given Compound E tablets by her doctor treating her for 'rheumatoid' arthritis. I am only repeating this as told by a patient of mine who obviously wanted me to give her this wonderful medicine. I must leave it to my colleagues to judge if this story is correct and, if so, the risk run by the doctor involved in such fraud.

Only a few days ago in the 31 December 1949 edition of the J. Amer. Med. Assoc. there was an article on 'Effects of Pituitary Adrenocorticotropic Hormone (ACTH) Therapy' by Elkinton and others. The concluding words of their summary are: 'The developments of these complications . . . suggest that the therapeutic use of pituitary adrenocorticotropic hormone must be approached with great caution.'

This warning is timely and because of the publicity given in the lay press to these new hormones in the therapy of 'rheumatism' the public demands them from their doctors. It will, therefore, be of interest to the profession to learn at least enough for the enlightenment of the patients as contained in the following letter received by me today from the U.S.A.: 'I wish to state that we are here working with all the substances that you have been reading about in the various texts of the newspapers relative to the treatment of rheumatoid arthritis. While cortisone, ACTH and all the other substances are available only for investigative purposes, we have been working with same at my clinic. It is of interest that cortisone is a drug which seems to suppress the activity of the adrenal cortex, while ACTH will stimulate this gland. It is my opinion that cortisone alone or ACTH alone will not be the answer to our problem. Both substances are too toxic and produce Cushing's syndrome if given in sufficient doses; therefore it makes it necessary to stop treatment very promptly. Unfortunately, when cortisone is administered and treatment has been stopped, the patient will return not only to his former state, but even be worse than what he was before treatment, within 48 hours.

'We have been working in my clinics with other adrenocortical hormones and find that these substances are not in the least bit toxic and yet they do, in certain instances, produce beneficial effects. We are hard pressed with these problems due to the fact that we are limited in our supply of drugs. The substances that we are using are frightfully expensive and very few people seem to be able to afford them; however, it is still very much in its experimental state.'

Sapienti sat!

Nathan Finn.

76 Harrow Road,
Yeoville, Johannesburg.
9 February 1950.

PUBLIC SUBSCRIPTIONS FOR SENDING PATIENTS OVERSEAS

To the Editor: I was interested in your Editorial which appeared in 11 February issue. I should like to bring this fact to your notice.

I am a member of *The Bureau for the Prevention of Blindness, of the South African National Council for Blindness.* Some time ago our Committee approached the Ophthalmological Society of South Africa and asked them to set up Boards, consisting of three ophthalmologists in each of the large centres where cases which appeared to require ophthalmic services of a specialized nature could be investigated. If it was found that the services could be given in South Africa, the patient was to be notified to that effect, and arrangements for treatment would be made, and treatment carried out *pro deo* if necessary. If it was considered that the case could only be benefited by receiving treatment overseas the case could then be made public through the Press and public subscriptions solicited.

Some of these Boards have already functioned and cases have already benefited by treatment by South African Ophthalmologists.

It might be suggested that other departments of medicine and surgery follow our lead and that the Press of South Africa be asked to co-operate with the Medical Association of South Africa in discussing with the Boards concerned any requests for public financial assistance for what a layman may consider a case for overseas treatment.

Esther Franks.

10 Van Riebeek Medical Bldgs.,
Schoeman Street,
Pretoria.
14 February 1950.